(1) Supreme Court, U.S.
FILED

03 326 AUG 27 2003
No. 03-

IN THE
Supreme Court of the United States

RARITAN COMPUTER, INC.,

Petitioner,

v.

APEX INC.,

Respondent.

ON PETITION FOR A WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

JOHN F. WARD
Counsel of Record
JOHN W. OLIVO, JR.
DAVID M. HILL
WARD & OLIVO
708 Third Avenue
New York, NY 10017
(212) 697-6262

Attorneys for Petitioner

182466

COUNSEL PRESS
(800) 274-3321 • (800) 359-6859

130 pp

QUESTION PRESENTED

In a string of recent decisions (including the present case), the United States Court of Appeals for the Federal Circuit has ruled that it is advisable, and indeed preferable, to interpret technical claim terms using extrinsic evidence, particularly dictionary definitions, rather than the intrinsic evidence available to the public. These decisions represent a clear departure from prior precedent of both this Court and the Federal Circuit.

The question presented is whether these "dictionary" cases are prejudicial to the public. By elevating extrinsic dictionary definitions over intrinsic evidence, the Federal Circuit has changed the rules of claim interpretation. Without knowing what dictionary the Federal Circuit will choose, the public cannot determine where infringement ends and innovation begins. This is not some idle threat — in 15 precedential cases this year relying on dictionary definitions to construe disputed claim terms, the Federal Circuit has cited 21 different dictionaries.

STATEMENT PURSUANT TO RULE 29.6

Petitioner, Raritan Computer, Inc. states that it has no corporate parents, and that no publicly held company owns 10% or more of Raritan Computer, Inc.'s stock.

TABLE OF CONTENTS

	Page
Question Presented	i
Statement Pursuant to Rule 29.6	ii
Table of Contents	iii
Table of Cited Authorities	v
Table of Appendices	xi
Opinions Below	1
Statement of Jurisdiction	1
Statement of the Case	1
Reasons for Granting the Petition	5
I. Certiorari Is Warranted Because The Decision Below Conflicts With Decisions Of This Court And Other Decisions Of The Federal Circuit	6
A. The Decision Below Adopts A Claim Interpretation Procedure That Elevates Dictionary Definitions Over The Intrinsic Evidence Available To The Public	6

Contents

Page

B. The Decision Below Ignores Intrinsic Evidence That Conflicts With The Dictionary Definitions 12

C. The Decision Below Ignores PTO Factfinding That Was Neither Arbitrary Nor Capricious 15

II. The Decision Below Makes It Impossible For The Public To Make Informed Decisions Regarding Patent Validity And Infringement 19

Conclusion 25

TABLE OF CITED AUTHORITIES

Page

CASES

Abbot Labs. v. Syntron Bioresearch, Inc., 334 F.3d 1343 (Fed. Cir. 2003) 10

Altiris, Inc. v. Symantec Corp., 318 F.3d 1363 (Fed. Cir. 2003) 10

Amgen Inc. v. Hoechst Marion Roussel, 314 F.3d 1313 (Fed. Cir. 2003) 10

Anchor Wall Sys. v. Rockwood Retaining Walls, Inc., 2003 U.S. App. LEXIS 16536 (Fed. Cir. 2003) 10

Anderson v. International Eng'g & Mfg., Inc., 160 F.3d 1345 (Fed. Cir. 1998) 7

Apex Inc. v. Raritan Computer, Inc., 325 F.3d 1364 (Fed. Cir. 2003) 10

Autogiro Co. of Am. v. United States, 384 F.2d 391 (Ct. Cl. 1967) 10

Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys., 132 F.3d 701 (Fed. Cir. 1997) 24

Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp., 320 F.3d 1339 (Fed. Cir. 2003) 10

Cited Authorities

Page

Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141 (1989) 20

Bowers v. Baystate Techs., 320 F.3d 1317 (Fed. Cir. 2003) 10

Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294 (Fed. Cir. 2003) 10

Dickinson v. Zurko, 527 U.S. 150 (1999) 19

Elkay Manufacturing Company v. Ebco Manufacturing Company, et al., 192 F.3d 973 (Fed. Cir. 1999) 16, 17

E-Pass Techs., Inc. v. 3COM Corp., 2003 U.S. App. LEXIS 17027 (Fed. Cir. 2003) 10

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., et al., 535 U.S. 722 (2002) 20

Hilton Davis Chem. Co. v. Warner Jenkinson Co., 62 F.3d 1512 (Fed. Cir. 1995) 13, 14

Hockerson-Halberstadt, Inc. v. Avia Group Int'l, 222 F.3d 951 (Fed. Cir. 2000) 8, 14

Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, 2003 U.S. App. LEXIS 14586; 67 U.S.P.Q.2D (BNA) 1385 (Fed. Cir. 2003) 10

Cited Authorities

Page

Inverness Medical Switzerland GmbH, et al. v. Warner Lambert Company, 309 F.3d 1365 (Fed. Cir. 2002) 16

Lacks Indus. V. McKechnie Vehicle Components USA, Inc., 322 F.3d 1335 (Fed. Cir. 2003) 10

Liebscher v. Boothroyd, 258 F.2d 948 (C.C.P.A. 1958) 8

Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996) 8, 12, 16

Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed. Cir. 1995) ..... *passim*

McClain v. Ortmayer, 141 U.S. 419 (1891) 12

Moba v. Diamond Automation, 325 F.3d 1306 (Fed. Cir. 2003) 10

NeoMagic Corp. v. Trident Microsystems, Inc., 287 F.3d 1062 (Fed. Cir. 2002) 7

Netscape Communications Corp., et al. v. Konrad, 295 F.3d 1315 (Fed. Cir. 2002) 3

Nix v. Hedden, 149 U.S. 304 (1893) 8

Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314 (Fed. Cir. 2003) 10

Cited Authorities

Page

Rambus Inc. v. Infineon Techs. Ag, 318 F.3d 1081 (Fed. Cir. 2003) 10

Renishaw plc v. Marposs Societa' per Azioni, 158 F.3d 1243 (Fed. Cir. 1996) 8

Rexnord Corporation v. Laitram Corporation, 274 F.3d 1336 (Fed. Cir. 2001) 22

SEC v. Chenery Corp., 218 U.S. 80 (1943) 19

Southwall Technologies v. Cardinal IG Co., 54 F.3d 1570 (Fed. Cir. 1995) 19

Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002) 9

Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295 (Fed. Cir. 1999) 7

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed. Cir. 1996) ..... *passim*

Waner v. Ford Motor Co., 331 F.3d 851 (Fed. Cir. 2003) 10

Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 41 USPQ2d 1865 (1997) 17, 24

Zelinski v. Brunswick Corp., 185 F.3d 1311 (Fed. Cir. 1999) 8

Zenith Labs., Inc. v. Bristol-Myers Squibb Co., 19 F.3d 1418 (Fed. Cir. 1996) 17-18

Cited Authorities

Page

UNITED STATES CONSTITUTION

art. I, § 8, cl. 8 19-20

RULES/STATUTES

Administrative Procedure Act, 5.U.S.C.S. § 706 .. 19

28 U.S.C. § 1254(1) 1

35 U.S.C. § 101-103 2

35 U.S.C. § 112 ..... 13, 20

37 C.F.R. § 1.104(e) 15

Manual of Patent Examining Procedures § 1302.14 ..... 15, 16

Rules and Regulations, 65 Fed. Reg. 54604 (2000) 17

Page

OTHER AUTHORITIES

Aprill, Ellen P., *The Law Of The Word: Dictionary Shopping In The Supreme Court*, 30 Ariz. St. L. J. 275 (1998) 11

Kahrl, Robert C., *Texas Digital and the Stampede to the Dictionaries*, American Bar Association, Section of Intellectual Property Law, The 18th Annual Intellectual Property Law Conference, April 3, 2003 22

Winchester, Simon, *The Professor And The Madman — A Tale Of Murder, Insanity, And The Making Of The Oxford English Dictionary* (1998) 11-12

TABLE OF APPENDICES

Page

Appendix A — Opinion Of The United States Court Of Appeals For The Federal Circuit Decided April 2, 2003 ..... 1a

Appendix B — Findings Of Fact And Conclusions Of Law Of The United States District Court For The Southern District Of New York Dated February 25, 2002 ..... 28a

Appendix C — Order Of The United States Court Of Appeals For The Federal Circuit Denying Petition For Panel Rehearing And Rehearing En Banc Dated And Filed May 29, 2003 ..... 92a

Petitioner respectfully petitions this Court for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit in this case.

OPINIONS BELOW

The District Court's opinion (per Pollack, S.J.) finding noninfringement in favor of Petitioner (Appendix ("Pet. App.") 28a-91a) is published at 187 F. Supp. 2d 141. The Federal Circuit's opinion (per Gajarsa, C.J., joined by Newman and Rader, JJ.) vacating and remanding the District Court's finding of noninfringement (Pet. App. 1a-27a) is published at 325 F.3d 1364. The Federal Circuit's order denying rehearing and rehearing en banc (Pet. App. 92a) is not otherwise published.

STATEMENT OF JURISDICTION

The Federal Circuit entered its opinion and order on April 2, 2003, and denied rehearing and rehearing en banc on May 29, 2003. Petitioner invokes this Court's jurisdiction under 28 U.S.C. § 1254(1).

STATEMENT OF THE CASE

On May 23, 2001, Respondent Apex, Inc. ("Apex")[1] filed an action accusing Petitioner Raritan Computer, Inc. ("Raritan") of infringing one or more claims of Beasley *et al.* U.S. Patent Nos. 5,884,096, 5,933,176 and 6,112,264 (collectively referred to hereinafter as the "Apex patents" or the "patents-in-suit"). Apex further alleged that Raritan's

1. On June 25, 2003, Raritan was informed that Apex, Inc. changed its name to Avocent Redmond Corp.

infringement had been willful (although Apex had failed to provide any prior warning of either its infringement charge or its intention to file suit), and therefore asked for treble damages. Raritan, in its Answer, denied all charges of infringement and countered that the Apex patents were invalid under 35 U.S.C. §§ 101-103 and 112. Pet. App. 29a.

The patents-in-suit combine keyboard-video-mouse ("KVM") switches and OSD chips. Both technologies existed long prior to Apex's patents. In brief, a KVM switch allows a person at one workstation or computer to switch between and control a multitude of attached computers. KVM switches further eliminate the need to equip each and every attached computer with its own keyboard, video monitor and mouse, leading to significant savings in the cost and space associated with these components. Raritan has been selling KVM switches since the late 1980's — before Apex was even in business.

OSD chips, invented by Motorola in 1989, are incorporated into the circuitry within KVM switches to allow an operator to pull up an on-screen list of computers attached to his or her workstation, and switch between these computers with a click of the mouse. The Motorola OSD chip identified in the patents-in-suit is essentially identical to the Motorola OSD chip that has allowed a viewer (since the early 1990's) to change channels, adjust volume, etc., on television sets and computer monitors. The on-screen mechanism allows the viewer to see the channel or volume level superimposed on the screen. The switching mechanism is even more fundamental — it is identical to clicking on an icon (or a document summary in Word® or WordPerfect®) to pull up a desired program (or document). In essence, combining OSD with KVM switches is the same as putting a TV Guide® listing

on television — something else that has been done since at least the early 1990's. Indeed, systems where a remote computer could be accessed by clicking on an icon from a workstation have been around since at least 1990. *See Netscape Communications Corp., et al. v. Konrad*, 295 F.3d 1315 (Fed. Cir. 2002).

After an exchange of minimal discovery and nearly two years after Raritan's Paragon® system was first introduced — Apex filed a Motion for a Preliminary Injunction on September 25, 2001. In opposition, Raritan demonstrated not only that the Paragon® system did not infringe the asserted claims, but further that the patents-in-suit, if valid, were boxed in by both their minimal disclosures and a mountain of prior art. Raritan also proved that Apex's sole asserted basis for the motion — allegedly improper contacts between Raritan and Compaq (Apex's largest customer) — was pure fabrication. On November 13, 2001, the District Court denied Apex's Motion and set the case for trial beginning January 14, 2002. Pet. App. 30a.

On November 16, 2001, Apex filed an Amended Complaint, adding the manufacturer of some of Raritan's products as a party. In its Amended Answer, Raritan added antitrust counterclaims. Raritan also added crossclaims against Myson Technologies and Motorola, Inc., the makers of the On-Screen Display (OSD) chips used in Raritan's products. Since Apex's contention was that no one could use OSD chips in KVM switches without infringing its patents, it was appropriate for Raritan to seek indemnification from the OSD manufacturers. Motorola was particularly interested in attacking the Apex patents, seeing as it invented the OSD chip in 1989, saw it incorporated into televisions and computer monitors in the early 1990's, and now stood

essentially accused of contributory infringement of patents that did not issue until 1999 and 2000.

Apex attempted to withdraw the Amended Complaint, but Raritan had already answered. So, Apex was forced to move to withdraw the Amended Complaint. Since it was clear that this escalation of hostilities would push the January 2002 trial into the distant future, the District Court grudgingly granted the motion.

Trial began on January 14, 2002. Pet. App. 30a. Apex's first witness, a co-inventor and former company president, admitted that he had made no technical contribution to any patent claim. Apex's technical expert acknowledged that the functions performed by the disputed claim terms could be accomplished by an unquantifiable number of different structures. Testimony ended with Apex's technical expert trying to convince the Court that "transparent" and "opaque" were not opposites, but merely "slide along that same scale." An exasperated Judge Pollack commented:

> Mr. McAlexander, I'm a little disturbed by this fusion of opaque and transparent because the parties had previously agreed that if the claims are interpreted one way, there is infringement, and if they are interpreted another way, there is no infringement. And what you are telling me is there is no [sic] infringement no matter how you interpret it, isn't that right?

At the conclusion of the seven day trial, the District Court instructed the parties to jointly identify the disputed claim elements and submit proposed claim constructions for such disputed terms. In addition, the District Court requested that

the parties each submit proposed Findings of Fact and Conclusions of Law regarding issues of claim construction and infringement.

On February 25, 2002, the District Court issued a final Judgment with Findings and Conclusions as to claim construction and infringement. Pet. App. 28a-91a. On the basis of the intrinsic evidence and the evidence presented at trial, the District Court found that none of Raritan's accused products infringed any of the Apex patents. The District Court further dismissed Raritan's counterclaims. Pet. App. 90a.

Appeal to the Federal Circuit followed, where the case was vacated and remanded based in large part on evidentiary material that was not part of either the intrinsic evidence or the trial evidence. Pet. App. 1a-27a. The Federal Circuit, during its *de novo* review of the District Court's claim construction, introduced its own dictionary definitions for several of the disputed claim terms that the District Court had interpreted based on the intrinsic and trial evidence. Pet. App. 16a-26a. Because the Federal Circuit denied Raritan request for a rehearing, Raritan was never afforded the opportunity to challenge or even question the appropriateness of these definitions relied on by the Federal Circuit. Pet. App. 92a.

This petition for a writ of certiorari followed.

REASONS FOR GRANTING THE PETITION

The petition should be granted for two reasons:

First, as a procedural matter, the decision below is in direct conflict with over a century of legal precedent, including recent Supreme Court and Federal Circuit decisions. Patent claims have long been interpreted almost

exclusively on the basis of the intrinsic evidence available to the public. Courts have used extrinsic evidence, such as expert testimony, treatises and dictionaries, for purposes of education, not interpretation. This approach has the virtue of placing patentee and public on a level playing field.

Second, as a practical matter, the elevation of extrinsic evidence over intrinsic evidence provides the patentee with a distinct advantage. When claims are interpreted in light of the public record, the metes and bounds of the patent right can be reasonably well marked by anyone. This demarcation becomes virtually impossible, however, when claims are interpreted in light of unidentifiable dictionary definitions. Efforts by the public at claim interpretation are reduced to little more than fortune telling. Patent rights are undeservedly broadened, discouraging both legitimate competition and innovation.

I. Certiorari Is Warranted Because The Decision Below Conflicts With Decisions Of This Court And Other Decisions Of The Federal Circuit

A. The Decision Below Adopts A Claim Interpretation Procedure That Elevates Dictionary Definitions Over The Intrinsic Evidence Available To The Public

For well over a century, the Supreme Court has consistently held that a patent must describe the exact scope of the disclosed invention in order to both secure to the patentee all to which he is entitled, and to apprise the public of that which is still open to them. Historically, courts have determined the scope of patents by interpreting patent claims in light of the intrinsic evidence, i.e., the patent claims, the

patent specification and the prosecution history before the United States Patent and Trademark Office. All of these materials are available to the public.

Until recently, the Federal Circuit was in full accord. For example, in *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996), Judge Michel noted that the specification is the "single best guide to the meaning of a disputed claim term." Indeed, the decision goes further: "[i]n most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances it is improper to rely on extrinsic evidence." *Id.* at 1583.

The Federal Circuit has long cautioned against the dangers of using dictionary definitions. *See Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1300 (Fed. Cir. 1999) (dictionaries rarely resolve close questions in particular contexts); *Anderson v. International Eng'g & Mfg., Inc.*, 160 F.3d 1345, 1348 (Fed. Cir. 1998) ("dictionary definitions of ordinary words are rarely dispositive of their meaning in a technological context. A word describing patented technology takes its definition from the context in which it was used by the inventor."); *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062, 1071-72 (Fed. Cir. 2002) (dictionary definition of "coupling" did not resolve the construction of claim terms).

These decisions follow a long line of cases from the Federal Circuit's predecessor, the Court of Claims and Patent Appeals, similarly advocating restraint in the use of dictionaries. "Indiscriminate reliance on definitions found in dictionaries can often produce absurd results. . . . One need not arbitrarily pick and choose from the various accepted

definitions of a word to decide which meaning was intended. . . . The subject matter, the context, etc., will more often than not lead to the correct conclusion." *Liebscher v. Boothroyd*, 258 F.2d 948, 951 (C.C.P.A. 1958). Indeed, the case law emphasizes that the proper interpretation "can only be determined and confirmed with a full understanding of what the inventors actually developed and intended to envelop with the claim," and that "the construction that . . . most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw plc v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1996); *see Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 389 (1996).

In short, even following *Vitronics*, the Federal Circuit recognized the necessity of reviewing the intrinsic evidence before resorting to extrinsic evidence. *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 957 (Fed. Cir. 2000). This is not to say that dictionaries have no place in the claim interpretation analysis. For at least the last century this Court has instructed that dictionaries and other references should be used as an aid to understanding the technology at issue, *see Nix v. Hedden*, 149 U.S. 304, 306-07 (1893), but not as a substitute for evidence.

In fact, the Federal Circuit has previously treated technical terms differently from nontechnical terms, relying on dictionaries for the latter but requiring evidence of the ordinary and accustomed meaning to those of skill in the art for the former. *See Zelinski v. Brunswick Corp.*, 185 F.3d 1311, 1315-16 (Fed. Cir. 1999). By now expanding the use of dictionaries to technical terms as well, the Federal Circuit has veered off this well-charted course. It now recommends that claim terms be interpreted by relying on dictionary

definitions, while intrinsic evidence is consulted only to determine departures from common usage. *See Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203-04 (Fed. Cir. 2002).

Despite what seems like rather clear and straightforward guidance, *Vitronics* has been clearly misinterpreted by later panels. The problem seems to have started with a single word in the *Vitronics'* decision. While the Court in *Vitronics* recognized that dictionaries are "extrinsic" evidence, it noted that dictionary definitions may be relied upon in construing claim terms as long as they do not contradict any definition found in or ascertained by a reading of the patent documents. *See Vitronics*, 90 F.3d at 1584.

Later panels have erred by focusing on "contradict" rather than "ascertained." This misdirected focus has now evolved into decisions such as the present one, wherein dictionaries are consulted in a vacuum and no effort has been made to "ascertain" the meaning of claim terms in light of the intrinsic evidence. The patent file is now consulted only to ensure that it does not "contradict" a dictionary definition. This turns 100 years of patent jurisprudence on its head.

The Federal Circuit justifies its recent reversal of course by alleging that interpreting claims without reliance on the specification helps to guard against importing limitations from the specification into the claims. *Texas Digital*, 308 F.3d at 1204-05. Of course, the best way to avoid this common pitfall is to gain a thorough understanding of the invention by studying the patent file. It cannot be true that claim interpretation is best accomplished by ignoring the patentee's own description of his or her invention in favor of blind reliance on arbitrarily selected dictionary definitions.

Indeed, it is virtually impossible to understand all but the simplest inventions by reviewing the claims alone. It is comparable to trying to build a car given little more than a list of parts. More importantly, this new approach ignores the teachings of the Supreme Court going back over a century. When interpreting claims, courts have long been instructed to look first to the claims themselves, then to the specification, then to the prosecution history, and then to the prior art. *See Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396-98 (Ct. Cl. 1967); *Markman*, 52 F.3d at 979. This is the only way a full and complete understanding of the invention and the claims may be attained.

Now, the Federal Circuit inexplicably believes that a better understanding of the claims may be reached by consulting with randomly selected dictionaries. This year alone 15 such precedential opinions[2] have been rendered —

2. *See Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364 (Fed. Cir. 2003); *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339 (Fed. Cir. 2003); *Bowers v. Baystate Techs.*, 320 F.3d 1317 (Fed. Cir. 2003); *Rambus Inc. v. Infineon Techs. Ag*, 318 F.3d 1081 (Fed. Cir. 2003); *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363 (Fed. Cir. 2003); *Moba v. Diamond Automation*, 325 F.3d 1306 (Fed. Cir. 2003); *Waner v. Ford Motor Co.*, 331 F.3d 851 (Fed. Cir. 2003); *Abbot Labs. v. Syntron Bioresearch, Inc.*, 334 F.3d 1343 (Fed. Cir. 2003); *Amgen Inc. v. Hoechst Marion Roussel*, 314 F.3d 1313 (Fed. Cir. 2003); *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314 (Fed. Cir. 2003); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294 (Fed. Cir. 2003); *Lacks Indus. v. McKechnie Vehicle Components USA, Inc.*, 322 F.3d 1335 (Fed. Cir. 2003); *Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester*, 2003 U.S. App. LEXIS 14586; 67 U.S.P.Q.2D (BNA) 1385 (Fed. Cir. 2003); *Anchor Wall Sys. v. Rockwood Retaining Walls, Inc.*, 2003 U.S. App. LEXIS 16536 (Fed. Cir. 2003); and *E-Pass Techs., Inc. v. 3COM Corp.*, 2003 U.S. App. LEXIS 17027 (Fed. Cir. 2003).

relying on 21 different dictionaries[3] — all without explanation as why any of the particular dictionaries were chosen.

There is also considerable debate as to whether dictionaries are truly as authoritative, precise and scholarly as courts often assume. Many commentators suggest that they are not, asserting that they are often already out of date when published and are frequently patched together through a variety of collection methodologies that are not designed to ensure accuracy. *See, e.g.*, Ellen P. Aprill, *The Law Of The Word: Dictionary Shopping In The Supreme Court*, 30 Ariz. St. L. J. 275, 277, 287 and 297 (1998); *see also*, Simon Winchester, *The Professor And The Madman – A Tale Of Murder, Insanity, And The Making Of The Oxford English*

3. These dictionaries include: DICTIONARY OF COMPUTING (4th ed. 1996); DICTIONARY OF MICROBIOLOGY AND MOLECULAR BIOLOGY; MODERN DICTIONARY OF ELECTRONICS (7th ed. 1999); THE FREE ON-LINE DICTIONARY OF COMPUTING (at http://wombat.doc.ic.ac.uk/foldoc); IBM DICTIONARY OF COMPUTING (10th ed. 1994); MICROSOFT COMPUTER DICTIONARY (3d ed.); MICROSOFT COMPUTER DICTIONARY (4th ed. 1999); NEW IEEE STANDARD DICTION OF ELECTRICAL AND ELECTRONIC TERMS (5th ed. 1993); THE OXFORD ENGLISH DICTIONARY (2d ed. 1989); RANDOM HOUSE COLLEGE DICTIONARY; RANDOM HOUSE UNABRIDGED DICTIONARY (1993); RANDOM HOUSE WEBSTER'S UNABRIDGED DICTIONARY (2d ed. 1998); WEBSTER'S NEW TWENTIETH CENTURY DICTIONARY, UNABRIDGED (2d ed. 1962); WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY (1984); WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY (1987); WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (1968); WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (1986); WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (1993); WEBSTER'S THIRD INTERNATIONAL DICTIONARY (1997); MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (10th ed. 1999); RANDOM HOUSE WEBSTER'S UNABRIDGED DICTIONARY (2d ed. 1998); MCGRAW-HILL DICTIONARY OF SCIENTIFIC & TECHNICAL TERMS (1974); and WEBSTER'S SEVENTH NEW COLLEGIATE DICTIONARY (1967).

Dictionary (1998). Simon Winchester's book recounts the fascinating story behind the compilation of the original Oxford English Dictionary. That now authoritative volume was initially based in significant part on lexicographic information prepared and provided over a twenty year period by an institutionalized, psychopathic murderer! Then again, some would say this is the type of person best suited to the interpretation of patent claims!

In any event, as recently as its decision in *Markman*, this Court clearly indicated that extrinsic evidence must play a subservient role to intrinsic evidence. *See id.* at 389-90. In discussing the weight to be accorded to expert testimony (i.e., extrinsic evidence), this Court noted that "[i]n the main, we expect, any credibility determinations will be subsumed within the necessarily sophisticated analysis of the whole document, required by the standard construction rule that a term can be defined only in a way that comports with the instrument as a whole." *Id.* at 389. The Federal Circuit now ignores this "standard construction rule," preferring the simplicity of interpretation by dictionary to the "sophisticated analysis of the whole document."

B. The Decision Below Ignores Intrinsic Evidence That Conflicts With The Dictionary Definitions

Patent claims "define the scope of [the] patent grant," *Markman* at 373, and give notice to the public of that which it may not do without running afoul of the patentee's right of exclusivity. Perhaps more importantly, the claims let the public know that subject matter not specifically claimed "is still open to them." *Id.* (*quoting McClain v. Ortmayer*, 141 U.S. 419, 424 (1891). The law encourages the public to design and sell products which do not fall within the limitations of a patent claim, and considers the technological

improvements or alternatives that may result to be important benefits of the patent system. *Hilton Davis Chem. Co. v. Warner Jenkinson Co.*, 62 F.3d 1512, 1520 (Fed. Cir. 1995). The plain language of a claim is the first place a Court looks when construing a claim element. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). The claims of Apex's '176 patent, for example, disclose "[a] system for connecting a number of workstations . . . to a number of remote computer systems, comprising: a plurality of first signal conditioning units coupled to the workstations for receiving electronic signals produced by the keyboard and mouse and for creating a serial data packet that includes the electronic signals."

Here, the plain meaning rule demonstrates that Apex claimed a system that is capable of creating at least one single serial data packet comprising both keyboard and mouse electronic signals. This is even acknowledged by the Federal Circuit's opinion. Pet. App. 20a-21a.

Under the traditional claim interpretation analysis, the Court would next look to the patent specification. The specification is an important claim construction tool because it must "contain a written description of the invention in such full, clear, concise and exact terms as to enable any person of skill in the art . . . to make and use" it. 35 U.S.C. § 112, ¶ 1; *Markman*, 52 F.3d at 979. The Summary of the Invention contained in each of the Apex patents refers to a singular serial data packet as "the keyboard/mouse packet". More telling is that each specification repeatedly refers to the creation of a data packet consisting of keyboard and mouse electronic signals.

Finally, the Court would typically review the prosecution history. The prosecution histories of the Apex patents

highlight what the Apex patents do and do not cover. *See Vitronics*, 90 F.3d at 1582-83 (Fed. Cir. 1996); *Markman*, 52 F.3d at 980. The public (including Raritan) has the right to rely on statements made during prosecution that mark the boundaries of the claims. *Hockerson-Halberstadt*, 222 F.3d at 957 (holding that competitors are entitled to rely on the prosecution history when ascertaining the degree of lawful conduct, such as designing around the claimed invention). A party seeking to avoid infringement by "designing around" Apex's '176 patent, for example, is encouraged to develop a system which cannot combine keyboard and mouse signals into a single data packet (an express limitation of the '176 patent's claims). It is acknowledged that such activities increase the accumulated knowledge in the art. *Hilton Davis*, 62 F.3d at 1520. Here, the intrinsic evidence points uncontrovertedly to a plain meaning for the term "serial data packet." The Federal Circuit failed to take any of this intrinsic evidence into account, choosing instead to base its decision on an arbitrarily selected dictionary definition. Pet. App. 20a-21a.

The District Court's finding that the claims of Apex's '176 patent require the ability to create a single combined keyboard/mouse data packet is nothing more than a plain reading of the claim language, which is consistent with the specification and file history (i.e., all of the intrinsic evidence), trial testimony and controlling precedent of this Court. Pet. App. 54a-57a. It was improper for the Federal Circuit to jettison actual evidence in favor of an untimely dictionary definition.[4]

---

4. At a minimum, claims must be interpreted in accordance with the understanding of one of skill in the art as of the filing date. *See Vitronics*, 90 F.3d 1576. Here, the Federal Circuit used a 1999 dictionary to interpret a claim term filed in 1995.

C. The Decision Below Ignores PTO Factfinding That Was Neither Arbitrary Nor Capricious

By claiming a system which combines keyboard and mouse signals into a single data packet and routes that keyboard/mouse data packet through a switch, Apex was able to convince the Examiner that its invention was different from the cited prior art. This limitation was the only reason the Examiner gave for granting the patent. In his Statement of Reasons for Allowance, the Examiner stated:

> The prior art of record does not teach nor fair suggest the system arrangement as claimed with circuitry for creating serial data packet from keyboard and mouse electronic signals, and crosspoint switch for connecting keyboard/mouse/ video monitor from a number of workstations to a plurality of remote computer systems.

Pet. App. 9a, 20a-21a.

The Federal Circuit dismissed the Examiner's comments as a "standard reason for allowance" which "states only that the prior art does not teach or suggest the claimed system arrangement." Pet. App. 20a-21a. In truth, if there is a "standard" with respect to reasons for allowance, it is to provide no reasons at all. 37 C.F.R. § 1.104(e) is quite clear: "If the examiner believes that the record of the prosecution as a whole does not make clear his or her reasons for allowing a claim or claims, the examiner may set forth such reasoning." The Manual of Patent Examining Procedures ("MPEP") § 1302.14 further explains that

> [o]ne of the primary purposes of 37 C.F.R. 1.104(e) is to improve the quality and reliability of issued patents by providing a complete file

> history which should clearly reflect, as much as is reasonably possible, the reasons why the application was allowed. Such information facilitates evaluation of the scope and strength of a patent by the patentee and the public and may help avoid or simplify litigation of a patent.

Examiners are further cautioned that reasons for allowance are not needed in most cases and

> care must be taken to ensure that statements of reasons for allowance (or indication of allowable subject matter) are accurate, precise, and do not place unwarranted interpretations, whether broad or narrow, upon the claims. The examiner should keep in mind the possible misinterpretations of his or her statement that may be made and its possible estoppel effects.

See MPEP § 1302.14

This Court has previously determined that such statements, even when adverse to the patentee's interests, are binding on the patentee. *See Markman*, 517 U.S. at 373. The Federal Circuit has held the same in a number of cases. *See Elkay Manufacturing Company v. Ebco Manufacturing Company, et al.*, 192 F.3d 973 (Fed. Cir. 1999); *Inverness Medical Switzerland GmbH, et al. v. Warner Lambert Company*, 309 F.3d 1365 (Fed. Cir. 2002). Indeed, *Elkay* is virtually identical to the present case. In a Statement of Reasons for Allowance in *Elkay*, the Examiner wrote that he allowed claim 22 because he understood the claim to describe a single feed tube with a single flow path for both liquid and air. Elkay did not respond to this statement. Therefore, the Federal Circuit concluded that "Elkay disavowed a potential interpretation of feed tube limitations . . . that would include separate feed tubes or flow paths for liquid and air." *Elkay*,

193 F.3d at 979. Here, Apex disavowed any interpretation that does not require the ability to combine keyboard and mouse signals in a single data packet.

In fact, the United States Patent and Trademark Office ("PTO") has adopted a formal rule following this case law. *See* Rules and Regulations, 65 Fed. Reg. 54604 (2000):

> Section 1.104(e) has been revised by deleting the last sentence thereof. The last sentence previously stated:
>
> Failure to file such a statement does not give rise to any implication that the applicant or patent owner agrees with or acquiesces in the reasoning of the examiner.
>
> This statement of the rule is inconsistent with recent decisions by the United States Supreme Court (Supreme Court) and the United States Court of Appeals for the Federal Circuit (Federal Circuit), which highlight the crucial role a prosecution history plays in determining the validity and scope of a patent. *See e.g., Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 41 USPQ2d 1865 (1997); *Markman v. Westview Instruments*, 52 F.3d 967, 34 USPQ2d 1321 (Fed. Cir. 1995), *aff'd* 517 U.S. 320, 38 USPQ2d 1461 (1996); *Vitronics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 39 USPQ2d 1573 (Fed. Cir. 1996). The examiner's statement of reasons for allowance is an important source of prosecution file history. *See for example Zenith Labs., Inc. v. Bristol-Myers Squibb Co.*, 19 F.3d

1418, 30 USPQ2d 1285 (Fed. Cir. 1996), which references MPEP 1302.14 to this effect (Footnote 7 of the case).

> In view of the recent case law dealing with prosecution history, the failure of an applicant to comment on damaging reasons for allowance would give rise to a presumption of acquiescence to those reasons, and the negative inferences that flow therefrom. Accordingly, the statement in the rule that failure to file comments on reasons for allowance does not give rise to any implication that an applicant (or patent owner) agrees with or acquiesces in the reasoning of the examiner is obsolete and out of step with recent case law. The deletion of this statement from the rule should require applicant to set forth his or her position in the file if he or she disagrees with the examiner's reasons for allowance, or be subject to inferences or presumptions to be determined on a case-by-case basis by a court reviewing the patent, the Office examining the patent in a reissue or reexamination proceeding, the Board of Patent Appeals and Interferences reviewing the patent in an interference proceeding, etc.

If Apex disagreed with the Examiner's "data packet" limitation, it was obligated to raise its objections at the time. It is now too late, because a patentee is bound by its prosecution history. *See Markman*, 52 F.3d at 980. Of course, the fact of the matter is that Apex agreed with the Examiner that its patents were limited to systems capable of creating and routing a combined keyboard/mouse data packet. This was the only way Apex could avoid the cited prior art.

It is axiomatic that "[c]laims may not be construed one way in order to obtain their allowance and in a different way against accused infringers." *Southwall Technologies v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995).

Moreover, the Examiner's Statement of Reasons for Allowance clearly represents "factfinding" by the PTO. Pursuant to *Dickinson v. Zurko*, 527 U.S. 150, 156 (1999), "[a] reviewing court reviews an agency's reasoning to determine whether it is 'arbitrary' or 'capricious,' or, if bound up with a record-based factual conclusion, to determine whether it is supported by 'substantial evidence.'" (citing *SEC v. Chenery Corp.*, 218 U.S. 80, 89-93 (1943)).

In short, the Federal Circuit must apply the standard of review set forth in the Administrative Procedure Act, 5.U.S.C.S. § 706, rather than the stricter "clearly erroneous" standard which applies to District Court decisions. The Federal Circuit did not and cannot explain the authority allowing it to ignore duly-issued factfinding by an administrative agency. It simply set aside the Examiner's decision rendered following several years of prosecution, and substituted its own conclusion based solely on the definition of "data packet" found in the 1999 MICROSOFT COMPUTER DICTIONARY.

II. The Decision Below Makes It Impossible For The Public To Make Informed Decisions Regarding Patent Validity And Infringement

The Constitution directs Congress "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. I,

§ 8, cl. 8. This "exclusive Right" is, in fact, a temporary monopoly. As was noted by Justice Kennedy in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., et al.*, 535 U.S. 722, 730 (2002):

> The monopoly is a property right; and like any property right, its boundaries should be clear. This clarity is essential to promote progress, because it enables efficient investment in innovation. A patent holder should know what he owns, and the public should know what he does not. For this reason, the patent laws require inventors to describe their work in "full, clear, concise, and exact terms," 35 U.S.C. § 112, as part of the delicate balance the law attempts to maintain between inventors, who rely on the promise of the law to bring the invention forth, and the public, that should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150 (1989).

In order to pursue "innovations, creations, and new ideas beyond the inventor's exclusive rights," the public must be able to ascertain where those rights end. With the intrinsic evidence as a guide, the public can make informed decisions as to the scope of patent claims. Such decisions are simply not possible if claim terms are ultimately to be interpreted on the basis of dictionaries as yet unknown.

By way of example, in a typical situation, Company X decides that it wishes to market a new product. Aware of the products of its competitors, Company X seeks counsel as to both the patentability of its new product and the possibility

that it may infringe upon the patent rights of others. For the last century, patent counsel has performed essentially the same analysis. The product is studied, a search of Patent Office and other records is performed, patents and file histories are reviewed, and opinions are rendered as to the patentability of the new product and the potential infringement and validity of patents issued to others.

This entire process, however, is only made possible by the certainty provided by the previously unquestioned understanding that claims are interpreted in light of the intrinsic evidence. Absent that certainty, the process collapses. How can the public obtain competent opinions without knowing what dictionary or other reference the Federal Circuit will rely on? In theory, perhaps, counsel could undertake the Sisyphean task of reviewing as many dictionaries as possible — but no matter how many references are consulted, there can never be a guarantee that the Federal Circuit will not rely on something else.

And how does one choose among the multitude of definitions? The definition for a given technical term may vary broadly according to the technical field. This is why, historically, courts have been willing to resort to dictionaries only for common terms, while relying on testimony to interpret technical terms. At trial, Sharad Malik, Ph.D., a professor of electrical engineering at Princeton University, testified that certain of the terms at issue had no definitive meaning for one of skill in the art. He therefore looked to the specification for guidance on how those terms should be interpreted. Rather than relying on (or even addressing) this evidence, the Federal Circuit constructed its own definitions by referring only to dictionaries published years after the earliest claimed filing date of the applications leading to the

patents-in-suit. This was clear error. At a minimum, claim terms must be interpreted in a manner consistent with the understanding of those of skill in the art at the time the invention is made. In other words, the Federal Circuit at least was obligated to consult a dictionary in existence as of the filing date. Instead, it relied on several dictionaries, all published well after the filing date of the patents-in-suit.

Moreover, the particular selection of dictionary and dictionary definition may have an outcome-determinative effect on claim construction and infringement. See Kahrl, Robert C., *Texas Digital and the Stampede to the Dictionaries*, American Bar Association, Section of Intellectual Property Law, The 18th Annual Intellectual Property Law Conference, April 3, 2003 (discussing *Rexnord Corporation v. Laitram Corporation*, 274 F.3d 1336, 1344 (Fed. Cir. 2001)). As demonstrated by Kahrl, discrepancies between the definitions of the term "portion" from two different dictionaries, namely RANDOM HOUSE UNABRIDGED DICTIONARY and WEBSTER'S NEW WORLD COLLEGE DICTIONARY, result in two distinct outcomes — infringement and noninfringement — depending on which definition is used.[5] The same is arguably true here with respect to the disputed claim term "overlay". The Federal Circuit relied on several dictionaries in its decision. Using one of them, Raritan does not infringe. Using another, it might.[6] Such inconsistency is

5. According to RANDOM HOUSE UNABRIDGED DICTIONARY "portion" means "a part of any whole, either separated from or integrated with it" while WEBSTER'S NEW WORLD COLLEGE DICTIONARY defines "portion" as "a part or limited quantity of anything".

6. The Federal Circuit relied on, *inter alia*, MICROSOFT COMPUTER DICTIONARY (4th ed. 1999) and DICTIONARY OF COMPUTING (4th ed. 1996). According to the MICROSOFT COMPUTER DICTIONARY, "overlay" (Cont'd)

improper, particularly since it is crystal clear from the intrinsic evidence that Raritan does not practice "overlay" as claimed in the Apex patents. Of course, the problem is exacerbated when additional dictionaries are reviewed.[7]

The Federal Circuit's approach, while undoubtedly simpler than learning a given technology, places the public at an unfair disadvantage in relation to patentees. First, it is impossible for the public to determine the true scope of the claims of a patent. It is therefore impossible to obtain competent advice regarding validity and infringement. Second, it is impossible to design around claims if a final interpretation cannot be rendered prior to review by the Federal Circuit. One now only gains insight into the scope of a patent if you know who will author the opinion and what dictionaries or other references are in his or her office. In short, the Federal Circuit has lost sight of the public notice function of patents and their claims.

(Cont'd)
is defined as, "in computer graphics, to superimpose one graphic image over another" and "in video, to superimpose a graphic image generated on a computer over video signals, either live or recorded." Conversely, in DICTIONARY OF COMPUTING "overlay" is defined as "a section of code that is loaded into memory during the execution of a program, overwriting what was previously there."

7. For example, RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 965 (1995) defines "overlay" as "1. to lay or place (one thing) over or upon another. 2. to cover, overspread, or surmount with something. . . .4. something laid over something else; covering. 5. a superimposed decorative layer. . . ."; IBM DICTIONARY OF COMPUTING 488 (1994) defines "overlay" as "(1) [t]he technique of repeatedly using the same areas of internal storage during different stages of a program. . . ."

Not long ago, the Federal Circuit found that the public notice function of patents is defeated if a patentee can subsequently and substantially alter the meaning of his claims by a post-hoc, litigation-driven 'definition' unsupported by the specification. *See Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 707 (Fed. Cir. 1997) ("Once a dispute over claim construction arises, 'experts' should . . . not be heard to inject a new meaning into terms that is inconsistent with what the inventor set forth in his or her patent and communicated to the patent examiner and ultimately to the public.") The public is no better off where the new definition is provided by the Federal Circuit rather than the patentee. Either way, the public loses.

In *Warner-Jenkinson*, 520 U.S. at 33, this Court found that "claims . . . serve both a definitional and public notice function" and that the public should be able to assess the literal scope of claims and effective extension of claim scope under the doctrine of equivalents with reasonable certainty. This certainty is only possible if the public and courts alike base claim interpretation decisions on evidence available to all. The Federal Circuit must return to a claim interpretation approach based on the intrinsic evidence.

CONCLUSION

For the foregoing reasons, the petition for a writ of certiorari should be granted.

Respectfully submitted,

JOHN F. WARD
Counsel of Record
JOHN W. OLIVO, JR.
DAVID M. HILL
WARD & OLIVO
708 Third Avenue
New York, NY 10017
(212) 697-6262

Attorneys for Petitioner

APPENDIX

APPENDIX A — OPINION OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DECIDED APRIL 2, 2003

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

No. 02-1303

APEX INC.,

Plaintiff-Appellant,

v.

RARITAN COMPUTER, INC.,

Defendant-Appellee.

DECIDED: April 2, 2003

Before NEWMAN, RADER, and GAJARSA, *Circuit Judges.*

GAJARSA, *Circuit Judge.*

Plaintiff-Appellant, Apex Inc. ("Apex"), seeks review of the final judgment by the United States District Court for the Southern District of New York holding that United States Patent Nos. 5,884,096 ("the '096 patent"), 5,937,176 ("the '176 patent"), and 6,112,264 ("the '264 patent") (collectively "the patents") were not infringed and dismissing all of Defendant-Appellee's, Raritan Computer, Inc. ("Raritan"), counterclaims without prejudice. *Apex Inc. v. Raritan Computer, Inc.*, 187 F. Supp. 2d 141 (S.D.N.Y. 2002).

Appendix A

Because the district court erred as a matter of law in the construction of the disputed claim limitations of the patents, we vacate and remand for further proceedings consistent with this opinion.

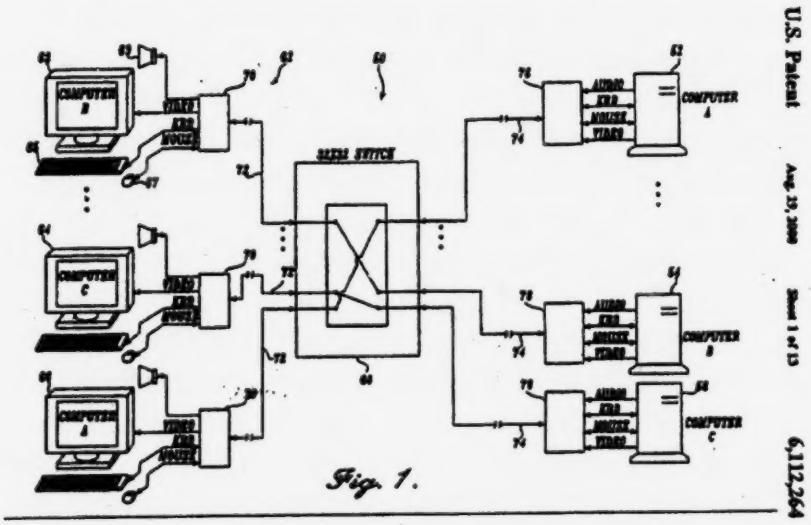
I. BACKGROUND

Apex markets and sells computer switching systems for connecting computer workstations to remote computers. Apex is the owner, by assignment, of the patents at issue. Raritan also markets and sells computer switching systems for connecting computer workstations to remote computers. Raritan's MasterConsole MX4, SMX, II, and MXU2 products ("the MasterConsole products"), and its Paragon products (collectively "the accused products") are at issue.

The '096, '176, and '264 patents are all continuations of a patent application filed on November 12, 1997 that ultimately issued as United States Patent No. 5,721,842 ("the '842 patent"). The '842 patent is not asserted by Apex in this action.

The patents in this action disclose and claim computerized switching systems, known in the art as keyboard, video, mouse ("KVM") switches, that allow centrally located network administrators to operate multiple server computers without requiring a complicated wiring scheme. '096 patent, col. 1, ll. 49-65. Figure 1 from the '264 patent provides a general overview of the KVM switches disclosed and claimed in the patents.

Appendix A



The computerized switching system allows for a number of server computers 52, 54, 56 to be coupled to a number of workstations 62, 64, 66. Each workstation includes a video monitor 63, a keyboard 65, and a cursor control device such as a mouse 67. Signals from the keyboard 65 and the mouse 67 are received by a signal conditioning circuit or pod 70. The pod transmits the keyboard and mouse signals over a communication link 72 to a programmable, or central crosspoint, switch 60. After being routed through the switch, the keyboard and mouse signals are retransmitted through another communication link 74 to a pod 76, which is coupled to the remotely-located server computer 52. The pod 76 supplies the keyboard and mouse signals through appropriate connectors to keyboard and mouse input ports of the remote computer, just as if the keyboard 65 and mouse 67 were directly coupled to the keyboard and mouse input ports. '096 patent, col. 3, ll. 1-18. An important aspect of the invention relates to the use of an on-screen programming

display feature that allows the user to select any particular server from any particular workstation. At the user's request, the switch displays a menu of services on the screen of the user's monitor. The user then can select a particular server from the visual menu using a cursor control device or the keyboard.

Apex asserts Raritan's MasterConsole products and Paragon products infringe claims 1, 6, 7, 10, 11, 20, 26 and 32 of the '096 patent and claims 1-10, 14, m and 16 of the '264 patent. Apex also asserts Raritan's Paragon products infringe claim 1 of the '176 patent. Of the claims asserted, claims 1, 6, 10, 11, 20, 26, and 32, of the '096 patent, claim 1 of the '264 patent, and claim 1 of the '176 patent are independent claims.

Before the district court, the parties disputed fourteen claim limitations within various claims of the patents in this action. Each of the contested limitations from the respective patents and claims is reproduced below.

The '096 patent

Claims 1, 11, 20, 26

> *a programmable switch* for routing keyboard and cursor control signals from the workstation to a selected computer and for routing video signals from the selected computer to the video monitor of the workstation;
>
> *a first interface circuit* for receiving keyboard and cursor control device signals from the workstation;

Appendix A

an on-screen programming circuit that produces video signals for display on the video monitor;

a second interface circuit disposed between the programmable switch and the selected computer for supplying the keyboard and cursor control device signals routed through the programmable switch to the selected computer;

Claim 1

a programmed logic circuit coupled to the first interface that transmits the keyboard and cursor control device signals to the programmable switch and controls the on-screen programming circuit to produce the video signals upon the detection of a predefined input from a user of the workstation, the programmed logic circuit further operating to detect keyboard or cursor control device signals received while the on-screen programming circuit is producing video signals on the video monitor and to control the programmable switch in response to the keyboard or cursor control device signals detected;

Claims 6-7, 10 and 32

producing *overlaid video signals* for display on the video monitor of the workstation;

Appendix A

The '176 patent

a plurality of *first signal conditioning units* coupled to the workstations for receiving electronic signals produced by the keyboard and mouse and for creating *a serial data packet* that includes the electronic signals;

a *central crosspoint switch* including a number of bidirectional inputs and outputs, said central crosspoint switch receiving the serial data packets from an input and routing the serial data packet to one or more of said outputs;

a plurality of *second signal conditioning units* coupled to the remote computer systems, for receiving the serial data packets transmitted on one of the plurality of second communication links switch and for supplying the data packets to a keyboard and mouse input of the remote computer, the plurality of second signal conditioning units receiving video signals produced by the remote computer systems and transmitting the video signals to the central switch on one of the plurality of second communication links;

The '264 patent

a *computer-side interface* for simultaneously physically connecting to independent, dedicated cables of respective keyboard and analog video outputs of plural computers;

a *user-side interface* for physically connecting to a first set of independent, dedicated cables of a first keyboard and an analog video input of a first monitor;

an *analog video overlay image generating circuit*, disposed between the computer-side interface and the user-side interface, for producing an analog overlay video signals internal to the switching system; and

an *analog video overlay circuit*, disposed between the computer-side interface and the user-side interface, for combining (1) a portion of the analog video signals received by the analog video receiving circuit and (2) the analog overlay video signals generated internally to the switching system to form a combined analog signal that is output to the first monitor via the user-side interface.

After a seven-day bench trial, the district court construed all fourteen of the disputed limitations as follows.

Means-plus-function limitations

The district court held that the limitations including the terms "first interface circuit," "on-screen programming circuit," "programmed logic circuit," "second interface circuit," "first signal conditioning unit," "second signal conditioning unit," "computer-side interface," "user-side interface," "analog video overlay image generating circuit,"

and "analog video overlay circuit" were all means-plus-function limitations. *Apex*, 187 F. Supp. 2d at 160. Despite Apex's contentions that the disputed limitations contained additional adjectives that, as a whole, further qualify and describe the particular structure recited, *id.* at 158, the district court determined that the claim limitations "using the words 'circuit,' 'interface,' and 'units' do not simply by the use of these words connote sufficient structure to perform the relevant functions recited in the element." *Id.* at 160-63.

"Serial data packet"

The district court interpreted the term "serial data packet" as "one that can, but need not, include *both* keyboard and mouse signals." *Id.* at 161. As support for this interpretation, the district court first looked to the language of the claims which stated as follows:

> a plurality of first signal conditioning units coupled to the workstations for receiving electronic signals produced by the keyboard and mouse and for creating *a serial data packet that includes the electronic signals.*

Id. at 154; '176 patent, col. 13, ll. 59-62. The district court then looked to the written description which it contended supported this interpretation with the statement:

> The CPU 80 then reads the digitally buffered keyboard and mouse signals from the keyboard mouse interface 82 and converts the signals into

> a data packet that is transmitted to the remote computer.

Apex, 187 F. Supp. 2d at 155. Lastly, the district court looked to the prosecution history relying on the examiner's reasons for allowance which stated:

> The prior art of record does not teach nor fair [sic] suggest the system arrangement as claimed with circuitry for creating serial data packet from keyboard and mouse electronic signals, and crosspoint switch for connecting keyboard/mouse/ video monitor from a number of workstations to plurality of remote computer systems.

Id.

"Overlay" and "overlaid video signals"

The district court interpreted the terms "overlay" and "overlaid video signals" to "require the ability to place two separate images (or video signals) on top of one another such that they would both be at the same spot on the screen at the same time." *Id.* at 156. As support for this interpretation, the district court relied on the prosecution history of the '842 patent (the first patent in the priority chain of the patents). Specifically, the district court relied upon the preamble of a claim in the Second Preliminary Amendment in the '193 application on January 14, 1997 which recited a "circuit for producing video signals over video signals that are produced by a remote computer." *Id.* The district court held "[w]ithout question, this indicates that Plaintiff understood that 'overlay' means having the ability to physically place one signal over another." *Id.*

In light of its claim construction, the district court found that none of the accused products infringes any of the asserted claims in the patents literally or under the doctrine of equivalents. The district court simply stated that there is no infringement of the patents because "the accused devices do not, but must, embody every element of any of the claims as properly interpreted." *Id.* at 170. Apex timely appealed the district court's final judgment and we have jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(1).

II. DISCUSSION

A. Standard of Review

A determination of infringement requires a two-step analysis. "First, the court determines the scope and meaning of the patent claims asserted . . . [and second,] the properly construed claims are compared to the allegedly infringing device." *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172 (Fed. Cir. 1998) (en banc) (citations omitted). Step one, claim construction, is a question of law, *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979, 34 USPQ2d 1321, 1329 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996), that we review *de novo*, *Cybor*, 138 F.3d at 1456, 46 USPQ2d at 1172. "Whether the language of a claim is to be interpreted according to 35 U.S.C. § 112, ¶ 6, i.e., whether a claim limitation is in means-plus-function format, is a matter of claim construction and is thus a question of law, reviewed *de novo*." *Kemco Sales, Inc. v. Control Papers Co., Inc.*, 208 F.3d 1352, 54 USPQ2d 1308, 1312 (Fed. Cir. 2000).

Step two, comparison of the claim to the accused device, requires a determination that every claim limitation, or its equivalent, be found in the accused device. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co* , 520 U.S. 17, 29 (1997). Those determinations are questions of fact, *Bai v. L & L Wings Inc.*, 160 F.3d 1350, 1353, 48 USPQ2d 1674, 1676 (Fed. Cir. 1998), reviewed for clear error, *Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.*, 204 F.3d 1360, 1363, 53 USPQ2d 1892, 1895 (Fed. Cir. 2000). "A finding is 'clearly erroneous' when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed." *Amhil Enters. Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562, 38 USPQ2d, 1471, 1476 (quoting *United States v. United States Gypsum Co.*, 333 U.S. 364, 395 (1948)).

B. Claim Construction

When construing the claims, we begin with an examination of the intrinsic evidence, i.e., the claims, the other portions of the written description, and the prosecution history (if any, and if in evidence). *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1339, 59 USPQ2d 1290, 1293-94 (Fed. Cir. 2001). Additionally, dictionary definitions may be consulted in establishing a claim term's ordinary meaning. *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1818 (Fed. Cir. 2002). In analyzing the intrinsic evidence, we start with the language of the claims and engage in a "strong presumption" that claim terms carry their ordinary meaning as viewed by one of ordinary skill in the art. *Tate Access Floors, Inc. v. Interface Architectural Resources, Inc.*, 279 F.3d 1357, 1369, 61 USPQ2d 1647, 1656

(Fed. Cir. 2002); *CCS Fitness Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366, 62 USPQ2d 1658, 1662 (Fed. Cir. 2002) (stating there is a "heavy presumption" that claim terms carry their ordinary meaning as viewed by one of ordinary skill in the art). Courts may also review extrinsic evidence to assist them in comprehending the technology in accordance with the understanding of skilled artisans and as necessary for actual claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309, 51 USPQ2d 1161, 1168 (Fed. Cir. 1999). Extrinsic evidence may not be relied upon, however, to vary or contradict the clear meaning of terms in the claims. *Markman*, 52 F.3d at 981, 34 USPQ2d at 1331.

1. Means-plus-function limitations

Title 35, section 112, paragraph 6 of the United States Code provides that:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6 (2000). Such limitations are generally known as "means-plus-function" or "step-plus-function" limitations. Through use of means-plus-function limitations, patent applicants are allowed to claim an element of a combination functionally, without reciting structures for performing those functions. *Envirco Corp. v. Clestra*

Cleanroom, Inc., 209 F.3d 1360, 1364, 54 USPQ2d 1449, 1452 (Fed. Cir. 2000).

It is well settled that "[a] claim limitation that actually uses the word 'means' invokes a rebuttable presumption that § 112, ¶ 6 applies. By contrast, a claim term that does not use 'means' will trigger the rebuttable presumption that § 112, ¶ 6 does not apply." *CCS Fitness*, 288 F.3d at 1369, 62 USPQ2d at 1664. "[T]he term 'means' is central to the analysis." *Personalized Media Communications v. Int'l Trade Comm'n*, 161 F.3d 696, 703, 48 USPQ2d 1880, 1886 (Fed. Cir. 1998).

From a procedural standpoint, this presumption "imposes on [Raritan] the burden of going forward with evidence to rebut . . . the presumption, but does not shift to such party the burden of proof in the sense of the risk of nonpersuasion, which remains throughout the trial upon the party on whom it was originally cast." Fed. R. Evid. 301. Raritan can rebut this presumption "if it demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites a 'function without reciting sufficient structure for performing that function.' " *CCS Fitness*, 288 F.3d at 1369, 62 USPQ2d at 1665 (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880, 56 USPQ2d 1836, 1838 (Fed. Cir. 2000)). This burden must be met by a preponderance of the evidence. *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1045, 22 USPQ2d 1321, 1332 (Fed. Cir. 1992) ("In civil cases litigants are generally required to prove facts by a preponderance of the evidence.") If the party who must bring forth evidence fails to proffer sufficient evidence to meet its burden, the presumption, either for or against the application of § 112, ¶ 6, prevails.

This presumption can collapse when a limitation lacking the term "means" nonetheless relies on functional terms rather than structure or material to describe performance of the claimed function. *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1257, 52 USPQ2d 1258, 1263 (Fed. Cir. 1999). Conversely, when a claim uses the term "means," the focus is on whether the claim term recites no function corresponding to the means or recites sufficient structure or material for performing that function. *Rodime PLC v. Seagate Tech., Inc.*, 174 F.3d 1294, 1302, 50 USPQ2d 1429, 1434 (Fed. Cir. 1999).

"To help determine whether a claim term recites sufficient structure, we examine whether it has an understood meaning in the art." *Watts*, 232 F.3d at 880-81, 56 USPQ2d at 1838. As an aid in making this determination, this court inquires into whether the "term, as the name for the structure, has a reasonably well understood meaning in the art," keeping in mind that a claim term "need not call to mind a single well-defined structure" to fall within the ambit of § 112, ¶ 6. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583, 39 USPQ2d 1783, 1786 (Fed. Cir. 1996) (holding that "detent mechanism" limitation was not a means-plus-function limitation). "[T]he fact that a particular [claim term] is defined in functional terms is not sufficient to convert a claim [limitation] into a 'means for performing a specified function' within the meaning of 112(6)." *Id.*

As an initial matter, *none* of the claim limitations asserted by Raritan to be means-plus-function limitations contains the term "means," which, as noted, is central to the analysis. While the district court correctly acknowledged this fact and

stated that the limitations were presumed not to be means-plus-function limitations, it nevertheless determined that all but two of the limitations were means-plus-function limitations. In doing so, the district court erred as a matter of law. The primary source of this error lies in the district court's reliance on single words of the limitations, e.g., "circuit," as opposed to the limitations as a whole, e.g., "a first interface circuit for receiving keyboard and cursor control device signals from the workstation." *See United States v. Telectronics, Inc.*, 857 F.2d 778, 781, 8 USPQ2d 1217, 1220 (Fed. Cir. 1988) (holding that district court's interpretation of the term "avoid" based on the dictionary definition without regard to the rest of the limitation was error).

a. "circuit" limitations

The "circuit" limitations are contained in the asserted claims of the '096 and '264 patents as identified in section I, *supra*. Initially, all the claim limitations at issue lack the term "means," accordingly, we presume that § 112 ¶ 6 does not apply. *CCS Fitness*, 288 F.3d at 1369, 62 USPQ2d at 1664. We next must determine whether Raritan has shown that the limitation, as understood by one of ordinary skill in the art, demonstrates that the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function. *Id.* In the absence of sufficient evidence, the presumption stands. Raritan failed to meet this evidentiary burden.

The threshold issue for all the limitations involving the term "circuit" is whether the term itself connotes sufficient

structure to one of ordinary skill in the art to perform the functions identified by each limitation. The district court determined this term, by itself, did not connote sufficient structure and prematurely ended its analysis at this threshold issue. While we do not find it necessary to hold that the term "circuit" by itself always connotes sufficient structure, the term "circuit" with an appropriate identifier such as "interface," "programming" and "logic," certainly identifies some structural meaning to one of ordinary skill in the art.

The term "circuit" is defined as "the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function." *Dictionary of Computing*, 75 (4th ed. 1996).[1]

In light of this definition, it is clear that the term "circuit," by itself connotes some structure. In the absence of any more compelling evidence of the understanding of one of ordinary skill in the art, the presumption that § 112, ¶ 6 does not apply is determinative. Raritan's evidence consisted of district court decisions addressing the meaning of the term "circuit means" and Apex's description of the preferred embodiments in the specification. We find that this evidence is not sufficient to

1. Several courts have determined that the term "circuit" connotes sufficiently definite structure to those skilled in the art. *See Nilssen v. Magnetek, Inc.*, 1999 WL 982966, *9 (N.D. Ill. 1999) (considering term "circuit means"); *CellNet Data Sys., Inc. v. Itron, Inc.*, 17 F. Supp. 2d 1100, 1109 (N.D. Cal. 1998) (same); *Database Excelleration Sys. Inc. v. Imperial Technology Inc.*, 48 USPQ2d 1533, 1537 (N.D. Cal. 1998) (considering term "control circuit"); *but see Nilssen v. Motorola, Inc.*, 80 F. Supp. 2d 370 (N.D. Ill. 2000) (holding that the term "circuit" is so generic that by itself it conveys no structure at all).

rebut the § 112, ¶ 6 presumption. This evidence fails to show by a preponderance of the evidence that one of ordinary skill in the art believes the term does not recite sufficiently definite structure.

Moreover, claims are interpreted in light of the specification and with the knowledge of one of ordinary skill in the art. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). The written description discloses only the preferred embodiments of the various circuit limitations and does not use these terms "in a manner clearly inconsistent with the ordinary meaning" as understood by one of ordinary skill in the art. *Tex. Digital*, 308 F.3d at 1204, 64 USPQ2d at 1819 (stating if the specification uses the words in a manner clearly inconsistent with the ordinary meaning of a dictionary definition, the inconsistent dictionary definition must be rejected).

The prosecution history also does not suggest that the ordinary meaning of the term "circuit" does not apply. Lastly, the expert testimony submitted by Raritan, including the testimony of Drs. Hoff and Liaw shows only that the term "circuit" is understood by one of ordinary skill in the art as a very broad term and that one of the accused products included several of the circuit elements.

Moreover, every use of the term in the asserted claims includes additional adjectival qualifications further identifying sufficient structure to perform the claimed functions to one of ordinary skill in the art. *See Personalized Media*, 161 F.3d at 705, 48 USPQ2d at 1888 ("An adjectival qualification ('digital') placed on an otherwise sufficiently

definite structure ('detector') does not make the sufficiency of that structure any less sufficient for purposes of § 112, ¶ 6. Instead, it further narrows the scope of those structures covered by the claim and makes the term more definite."). The district court therefore erred in its interpretation of all the limitations as means-plus-function limitations by failing to consider the limitations as a whole.

While this court is plainly aware that claim construction is a question of law, we decline to construe every claim limitation because the record has not been sufficiently developed. As is the case with other aspects of patent law, e.g. obviousness, a proper determination of whether the claim limitations should be construed as means-plus-function limitations requires an understanding of one of ordinary skill in the art. In this situation, it is appropriate to look to extrinsic evidence, including but not limited to dictionaries and expert testimony to assist the trier of fact in understanding the evidence. *Greenberg*, 91 F.3d at 1583, 39 USPQ at 1786. In particular, the record should reflect the ordinary meaning of the claim limitations, as a whole, and whether these limitations suggest sufficiently definite structure to one of ordinary skill in the art. Despite this need for further development, the record does contain sufficient evidence to address the "first interface circuit" and "second interface circuit" limitations.

The relevant definition of the term "interface" is: "[t]he signal connection and associated control circuits that are used to connect devices." *Dictionary of Computing*, 250 (4th ed. 1996). Moreover, an "interface circuit" is defined as "a circuit that links one type of logic family with another or with analog

circuitry." Rudolf F. Graf, *Modern Dictionary of Electronics*, 385 (7th ed. 1999). This dictionary definition specifically provides several examples of an interface circuit, including a line driver and analog to digital converters. Thus, the ordinary meaning of this term connotes specific structures to one of ordinary skill in the art. The written description and prosecution history provide no evidence that the inventors intended the term "interface circuit" to have a meaning contrary to this ordinary meaning. Raritan relies solely on its arguments that the term "interface circuit" is a generic term and that the written description, by only showing one embodiment, clearly sets forth a limited definition of "interface circuit." We reject Raritan's classic attempt to limit the scope of a claim limitation to the preferred embodiment. *See Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 48 USPQ2d 1005 (Fed. Cir. 1998).

Because Raritan has failed to rebut the presumption that § 112, ¶ 6 does not apply, we hold that the terms "first interface circuit" and "second interface circuit" are not means-plus-function limitations. The term "interface circuit" means any circuit that links one type of logic system with another.

The district court should conduct a similar analysis with respect to the remaining "circuit," "interface," and "unit" limitations. Upon remand, the district court must determine the ordinary meaning of these limitations and whether this ordinary meaning defines sufficiently definite structure. Raritan has the burden of going forward with evidence to prove that § 112, ¶ 6 applies. Raritan must prove by a preponderance of the evidence that the limitations, as a whole,

do not connote sufficiently definite structure to one of ordinary skill in the art. We decline to conduct this analysis for the district court because the record is underdeveloped as to the ordinary meaning of these limitations as a whole and construing the claims based on this limited record could be prejudicial to the parties.

2. "Serial data packet"

The district court interpreted the term "serial data packet" in the claims of the '176 patent as "one that can, but need not, include *both* keyboard and mouse signals." The district court determined that the specification and Examiner's Reasons for Allowance of the '176 patent "required" the serial data packet to be capable of including both keyboard and mouse signals. The Examiner's Reasons for Allowance stated:

> The prior art of record does not teach nor fair [sic] suggest the system arrangement as claimed with circuitry for creating serial data packet from keyboard and mouse electronic signals, and crosspoint switch for connecting keyboard/mouse/ video monitor from a number of workstations to plurality of remote computer systems.

This standard reason for allowance, however, states only that the prior art does not teach or suggest the claimed system arrangement. This reason for allowance merely summarizes the claimed invention and fails to specifically state that patentability is based on the serial data packet including both keyboard and mouse signals.

Appendix A

According to claim 1, a serial data packet "includes the electronic signals." The electronic signals are produced by the keyboard and mouse. A "data packet" is defined as "a unit of information transmitted as a whole from one device to another on a network." *Microsoft Computer Dictionary*, (4th ed. 1999). This definition suggests that a data packet, contrary to the district court's decision, need not be capable of including both keyboard and mouse signals.

Moreover, claims are interpreted in light of the written description and with the knowledge and understanding of those of ordinary skill in the art. *Vitronics*, 90 F.3d at 1582, 39 USPQ2d at 1576-77. Nothing in the written description suggests that a keyboard signal must accompany a mouse signal. In fact, while the district court interpreted "serial data packet" to require the capability of including both keyboard and mouse signals, it recognized that the packet could include only mouse or only keyboard signals. In other words, the district court recognized that one of ordinary skill in the art would understand that a signal data packet includes a mouse signal, a keyboard signal, or both. The prosecution history does not evidence a need to depart from the ordinary meaning supported by the written description. Accordingly, the term should be given its ordinary meaning. *Inverness Med. Switz. GmbH v. Princeton Biomeditech Corp.*, 309 F.3d 1365, 64 USPQ2d 1926 (Fed. Cir. 2002). The ordinary meaning of serial data packet is a unit of information transmitted as a whole from one device to another on a network that includes a keyboard signal, a mouse signal, or both. Therefore, we reverse the district court's claim construction of the term "serial data packet."

Appendix A

3. Overlay/overlaid

The district court interpreted the terms "overlay" and "overlaid video signals" to "require the ability to place two separate images (or video signals) on top of one another such that they would both be at the same spot on the screen *at the same time.*" (emphasis added). As support for this interpretation, the district court relied on the prosecution history of the '842 patent, the parent of the first patent in the priority chain of the patents. Specifically, the district court relied upon the *preamble* of a claim in the Second Preliminary Amendment in the '193 application on January 14, 1997, which recited a "circuit for producing video signals over video signals that are produced by a remote computer." The district court held "[w]ithout question, this indicates that Plaintiff understood that 'overlay' means having the ability to physically place one signal over another."

Turning first to the claim language, the plain language of the limitations do not require display of two separate images *at the same time.* Instead, the language requires circuitry for producing "overlay" or "overlaid" signals. Again, claims are to be interpreted in light of the written description and with the knowledge and understanding of those of ordinary skill in the art. *Vitronics*, 90 F.3d at 1582, 39 USPQ2d at 1576-77. The *Microsoft Computer Dictionary* cites the definition of the term "overlay" as:

> 1. In computer graphics, to superimpose one graphic image over another. 2. In video, to

> superimpose a graphic image generated on a computer over video signals, either live or recorded.

This definition does not require simultaneous display of two separate video images, as the district court required.

The written description supports the ordinary meaning by providing numerous methods for displaying "overlaid" images in accordance with the present invention. '176 patent, col. 12, l. 39—col. 13, l. 12. The prosecution history, contrary to the district court's decision, does not limit the ordinary meaning of the terms "overlay" and "overlaid." The district court looked to the prosecution history and determined that language in the preamble of a preliminary amendment of a grandparent application required a narrowed construction of the terms "overlay" and "overlaid." This single instance of "evidence" does not overcome the presumption that claim language takes on its ordinary meaning.

In short, nothing appears within the written description or the prosecution history that limits the ordinary meaning of the terms "overlay" or "overlaid" as the district court held. The terms "overlay" and "overlaid" have their ordinary meanings, to superimpose one graphic image over another. They do not require the two images to be present on the same spot on the monitor at the same time. Therefore, we reverse the district court's claim construction of the term "serial data packet."

Appendix A

4. "Switch"

The district court interpreted the term "switch" in as a device that opens or closes a circuit to form a *direct* path between inputs and outputs. The district court adopted this narrow interpretation at the behest of Raritan, without explanation. In the art of networking, the ordinary meaning of the term "switch" is "a device capable of forwarding packets directly to the ports associated with particular network addresses." *Microsoft Computer Dictionary*, (4th ed. 1999). According to the written description of the patents in suit, a signal conditioning unit receives mouse and keyboard signals from a workstation. The signal conditioning unit generates a serial data packet and sends the mouse/keyboard packet to a central crosspoint switch. The central crosspoint switch routes the data packet to another signal conditioning unit coupled to the remote server that decodes the mouse/keyboard packet. '176 patent, col 1, ll. 54-64. The written description discloses one embodiment of this "crosspoint switch" or "programmable switch." *Id.* at col. 6, ll. 15-61. This switch includes a master CPU and a number of input and output cards for transmitting and receiving signals. The written description does not limit the term switch to a device that opens or closes a circuit to form a *direct* path. Nothing was identified in the prosecution history to suggest this direct path. Thus, properly construed, a "programmable switch" or "crosspoint switch" is a programmable device capable of forwarding packets from one computer/workstation/server to another. Therefore, we reverse the district court's claim construction of the term "switch."

Lastly, Raritan argues that even if the claim limitations are not found to be means-plus-function limitations, the limitations are still limited to the only embodiment disclosed in the written description. We disagree. As support for its argument, Raritan states that "Apex has admitted that the preferred embodiment of its patents is nothing more than the invention itself." The record clearly shows that Apex made no such "admission." The evidence Raritan cites to, the trial testimony of one of the inventors of the patents, Danny Lynn Beasley, instead suggests that the overall concept of using an on-screen display in conjunction with KVM switches to facilitate management of various servers or workstations from various computers was believed to be novel. The testimony in no way suggests that the particular embodiment described in the patents is the entire invention.

Raritan further attempts to limit the claims to the preferred embodiment by stating that "since, the Apex patents do not teach any alternatives, the patent-in-suit [sic] must therefore be limited to this one embodiment." This is not the law. While it is true that a court may limit the meaning of a claim term if the patentee clearly set forth a definition of the claim term in the written description, *see e.g.*, *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 990, 50 USPQ2d 1065, 1068-69 (Fed. Cir. 1998), such is clearly not the case here. The description of the preferred embodiment is one particular example of the claimed invention that is consistent with the ordinary meaning of the claim terms as we currently understand them.

> Claim terms take on their ordinary and accustomed meanings unless the patentee

> demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic evidence *using words or expressions of manifest exclusion or restriction, representing clear disavowal of claim scope.*

Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313, 1327, 63 USPQ2d 1374, 1382 (Fed. Cir. 2002) (emphasis added). The written description contains no "words or expressions of manifest exclusion or restriction, representing clear disavowal of claim scope."

C. Infringement

The second step of the infringement analysis is comparing the properly construed claims with the allegedly infringing devices. *Cybor*, 138 F.3d at 1467, 46 USPQ2d at 1184. This comparison is a question of fact, *id.*, that we review for clear error. *Ultra-Tex Surfaces*, 204 F.3d at 1360, 53 USPQ2d at 1895.

In light of its claim construction, the district court found that none of the accused products infringe any of the asserted claims in the patents literally or under the doctrine of equivalents. The district court simply stated that there is no infringement of the patents because "the accused devices do not, but must, embody every element of any of the claims as properly interpreted." Based on the errors in claim interpretation as discussed, and the further development of the evidence to determine the ordinary meaning of a number of the disputed claim limitations, we vacate the district court's

infringement determination. Upon remand, the district court should conduct an infringement analysis consistent with the precedents of this court. In particular, the district court should provide an analysis under both literal infringement and infringement under the doctrine of equivalents. *See Lear Siegler, Inc. v. Sealy Mattress Co.*, 873 F.2d 1422, 1425, 10 USPQ2d 1767, 1770 (Fed. Cir. 1989) (holding that infringement analysis under the doctrine of equivalents requires a separate analysis from literal infringement—"[t]he evidence and argument concerning the doctrine [of equivalents] cannot merely be subsumed in plaintiff's case of literal infringement.").

III. CONCLUSION

Accordingly, we vacate the district court's grant of summary judgment of non-infringement and remand for further proceedings consistent with this opinion.

VACATED AND REMANDED.

IV. COSTS

Costs to appellant.

APPENDIX B — FINDINGS OF FACT AND CONCLUSIONS OF LAW OF THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF NEW YORK DATED FEBRUARY 25, 2002

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

01 CIV. 4435 (MP)

APEX INC.,

Plaintiff,

- against -

RARITAN COMPUTER, INC.,

Defendant.

FINDINGS AND CONCLUSIONS

Senior Judge Milton Pollack

I. Preliminary

A. *The Parties*

Plaintiff Apex is a Washington corporation, having its principal place of business in Redmond, and is the successor company of Apex PC Solutions., a wholly owned subsidiary of Avocent Corporation of Huntsville, AL.

Appendix B

Defendant Raritan is a New Jersey corporation, having its principal place of business in Somerset, NJ.

Plaintiff and Defendant both market and sell computer switching systems for connecting computer workstations to remote computers.

B. *Procedural History*

On May 23, 2001 Plaintiff Apex, Inc. ("Apex") filed this action accusing Defendant Raritan Computer, Inc. ("Raritan") of making, using, offering to sell, selling, or importing products that infringe one or more claims of U.S. Patents Nos. 5,884,096 ("the '096 patent"), 6,112, 264 ("the '264 patent"), and 5,397,176 ("the '176 patent") (collectively, "the patents-in-suit") under 35 U.S.C. §§ 271 and 281-285 (Compl., ¶¶ 8-28) and seeks damages pursuant to 25 U.S.C. § 283, as well as declaratory and injunctive relief (Compl. at 6). Plaintiff also asserts that Raritan's infringement of these patents has been willful, and therefore asks the Court to award treble damages under 35 U.S.C. § 284. Finally, Plaintiff seek fees pursuant to 35 U.S.C. § 284, costs pursuant to 35 U.S.C. § 284, and prejudgement and post-judgement interest.

Defendant Raritan denies all charges of infringement and asserts that all the patents-in-suit are invalid pursuant to 35 U.S.C. §§ 101-103 and 112. Defendant further asserts that Plaintiffs are estopped from including the accused products within the scope of the issued patent claims. Defendant also accuses Apex of having brought this action knowing that its patent claims are invalid and are not infringed and therefore requests a finding of an "exceptional case" and an award of

attorney's fees. Finally Defendant asserts that Plaintiff's claims for relief are barred by the doctrines of latches, waiver, unclean hands, and estoppel.

On November 13, 2001, this Court denied Plaintiff's motion for an Order pursuant to 35 U.S.C. § 283 preliminarily enjoining Defendant from making, selling, using, or importing one of Defendant's products which is known as the "Paragon Switch System," and which is the subject of this action. The decision was partially based on (1) Defendant's agreement not to make any offer or sales of its Paragon product to Compaq Computer Corporation, a significant Customer of Plaintiff, through completion of a trial on the merits in this case, (2) the delay of plaintiff in seeking an injunction, and (3) the scheduling of an early trial on January 14, 2001.

A seven-day trial took place as scheduled.

C. *The Patents*

1. Background

The '096, '176, and '264 patents, which are asserted in this action, all derive from a common parent application that was filed with the U.S. PTO on August 25, 1995 and resulted in the issuance of United States Patent No. 5,721,842 (the " '842 patent"), which is not asserted here. The patents-in-suit all pertain to computer switching systems that make use of an on-screen display for controlling the switching system and to obviate the need for manual switching. All of the patents-in-suit are now wholly owned by Apex.

Appendix B

2. Prosecution Histories of the Patents-in-Suit

i. The '096 Patent

The '096 patent issued on March 16, 1999, based on Application Serial No. 08/969,723 ("the '723 application") filed November 12, 1997, which is a continuation of Application Serial No. 08 519,193 ("the '193 application"), filed August 25, 1995 (now the '842 patent.)

The '723 application was filed with eight (8) claims. A Preliminary Amendment cancelling original claims 1-8 and adding new claims 9-10 was filed on November 12, 1997.

On February 10 and May 27, 1998, Apex filed Information Disclosure Statements ("IDS") bringing certain prior art references to the attention of the United States Patent and Trademark Office ("USPTO"). Also on May 27, 1998, Apex filed a second Preliminary Amendment in which claims 9-10 were cancelled and new claims 11-37 were added, with claims 11, 20, 26 and 32 being the only independent claims. No substantive remarks were provided by Apex.

In the first Office Action dated September 28, 1998, claims 11-37 were rejected under the judicially created doctrine of obviousness-type double-patenting in view of Apex's '842 patent. On October 22, 1998, Apex filed a Terminal Disclaimer to obviate this rejection, and filed another IDS. Apex also submitted an Amendment cancelling claim 36, amending claims 12-14, 21-23, 27-29, 33-35 and 37, and adding new claims 38-43, without remarks.

Appendix B

On November 12, 1998, the Examiner issued a Notice of Allowability, which did not contain any Examiner's Statement of Reasons for Allowance. The same day, Apex mailed still another Supplemental IDS citing over 100 prior art references, including for the first time Perholtz *et al.* United States Patent No. 5,732,212 ("the Perholtz patent").

On December 4, 1998, the Examiner indicated that he had reviewed the newly cited references and issued a Supplemental Notice of Allowability, again without any Statement of Reasons for Allowance.

On February 3, 1999, a Protest against the issuance of the '096 patent was filed by Cybex Computer Products Corporation. Specifically, Cybex asked that the Examiner be given an opportunity to carefully consider the Perholtz patent. Apex opposed the Protest, and on June 30, 1999, the USPTO dismissed the Protest as untimely.

On March 16, 1999, the '096 patent issued with thirty-two (32) claims.

ii. The '176 Patent

The '176 patent issued on August 10, 1999, based on Application Serial No. 08 970,168 ("the '168 application") filed November 12, 1997, which is a continuation of the '842 patent. The '168 application was filed with eight (8) claims.

On February 12, 1998, Apex filed an IDS citing additional prior art references to the USPTO.

Appendix B

On September 22, 1998, the Examiner issued a Notice of Allowability allowing all of the originally filed claims. The Notice of Allowability contained the Examiner's Statement of Reasons for Allowance, which stated:

> "the prior art of record does not teach nor fair suggest the system arrangement as claimed with circuitry for creating serial data packet from keyboard and mouse electronic signals, and crosspoint switch for connecting keyboard/mouse/ video monitor from a number of workstations to plurality of remote computer systems."

On December 3, 1998, in an interview with Apex's representative, the Examiner rejected all of the pending claims on the basis of double-patenting in view of the '842 patent. To overcome this rejection, Apex filed a Terminal Disclaimer on December 7, 1998.

On December 16, 1998 (after allowance of the pending claims), Apex filed an Amendment cancelling Claims 2 and 3 and amending Claim 1 to "conform the claims to those pending in corresponding foreign applications."

On August 10, 1999, the '176 patent issued with six (6) claims.

iii. *The '264 Patent*

The '264 patent issued on August 29, 2000 based on Application Serial No. 09/244,947 ("the '947 application")

filed February 4, 1999, which is a continuation of Application Serial No. 08/969,723 filed November 12, 1997 (now the '096 patent), which is a continuation of the '842 patent. The '947 application was filed with eight (8) claims. Claim 1 was the only independent claim, and Claim 8, which depended from Claim 1, contained the limitation for an OSD circuit (*i.e.*, an "on-screen programming circuit") in the first signal conditioning unit.

During an Examiner interview on June 1, 1999, Apex's representative discussed with the Examiner the patentability of the pending claims (*i.e.*, Claims 1-8). In an Interview Summary Report dated June 3, 1999, the Examiner noted that the Perholtz patent was discussed and recorded that the "distinguished feature of the present invention over Perholtz—analog overlay done within the central switch."

Two weeks later, on June 16, 1999, Apex filed a Preliminary Amendment. In its Remarks, Apex stated that "[a]lthough no agreement was reached on the patentability of the proposed claims. Applicant's representative discussed that the claims are distinguishing from the invention of the '212 patent. It is believed that the pending claims are patentably distinct from any claim that can be presented in the '212 patent." In other words, the Examiner and Apex's representative did not agree on the patentability of Claims 1-8, so Apex cancelled Claims 1-8. New Claims 9-25 provided for the location of the analog overlay "disposed between the computer-side interface and the user-side interface."

Appendix B

On August 25, 1999, an Office Action was provided, rejecting claims 9-25 under the judicially created doctrine of obviousness-type double-patenting in view of both the '842 and '096 patents. In response, on December 20, 1999, Apex filed a Request for Reconsideration in which it argued that its "claims are patentably distinct from the original claims" as being directed at analog circuits as opposed to generic circuits of the prior patents. On April 10, 2000, the Examiner issued a Notice of Allowability without any Statement of Reasons for Allowance.

On August 29, 2000, the '264 patent issued with seventeen (17) claims.

D. *The Accused Products*

Apex accuses five Raritan products of infringement. These are: Raritan's MasterConsole MX4 ("MX4") Raritan's MasterConsole SMX ("SMX") Raritan's MasterConsole II ("MC II") Raritan's MasterConsole MXU2 ("MXU2") (Collectively, "MasterConsole products"): and Raritan's Paragon ("Paragon" or "Paragon system").

Apex asserts that the Paragon and all of the MasterConsole products infringe the following claims in the patents-in-suit which all relate to computer switching systems featuring on-screen video display for control of switching: Claims 1,6, 7, 10, 11, 20, 26, and 32 of the '096 patent and Claims 1-10, 14, and 16 of the '264 patent. Apex asserts that the Paragon further infringes Claim 1 of the '176 patent.

Appendix B

II. Disputed Constructions

The elements of the asserted claims the construction of which is in dispute in this action are set forth below (disputed limitation emphasized):

A. Claims 1, 11, 20 and 26 of the '096 patent each require:

> a *programmable switch* for routing keyboard and cursor control signals from the workstation to a selected computer and for routing video signals from the selected computer to the video monitor of the workstation.

B. Claims 1, 11, 20 and 26 of the '096 patent each require:

> a *first interface circuit* for receiving keyboard and cursor control device signals from the workstation.

C. Claims 1, 11, 20 and 26 of the '096 patent each require:

> an *on-screen programming circuit* that produces video signals for display on the video monitor.

D. Claims 1, 11, 20 and 26 of the '096 patent each require:

> a *second interface circuit* disposed between the programmable switch and the selected computer for supplying the keyboard and cursor control device signals routed through

the programmable switch to the selected computer.

E. Claim 1 of the '096 patent requires:

a *programmed logic circuit* coupled to the first interface that transmits the keyboard and cursor control device signals to the programmable switch and controls the on-screen programming circuit to produce the video signals upon the detection of a predefined input from a user of the workstation, the programmed logic circuit further operating to detect keyboard or cursor control device signals received while the on-screen programming circuit is producing video signals on the video monitor and to control the programmable switch in response to the keyboard or cursor control device signals detected.

F. Claims 6-7, 10 and 32 of the '096 patent each require:

producing *overlaid video signals* for display on the video monitor of the workstation.

G. All of the claims of the '176 patent require:

a plurality of *first signal conditioning units* coupled to the workstations for receiving electronic signals produced by the keyboard

and mouse and for creating *a serial data packet* that includes the electronic signals.

H. All of the claims of the '176 patent require:

a *central crosspoint switch* including a number of bidirectional inputs and outputs, said central crosspoint switch receiving the serial data packets from an input and routing the serial data packet to one or more of said outputs.

I. All of the claims of the '176 patent require:

a plurality of *second signal conditioning units* coupled to the remote computer systems, for receiving the serial data packets transmitted on one of the plurality of second communication links switch and for supplying the data packets to a keyboard and mouse input of the remote computer, the plurality of second signal conditioning units receiving video signals produced by the remote computer systems and transmitting the video signals to the central switch on one of the plurality of second communication links.

J. All of the claims of the '264 patent require:

a *computer-side interface* for simultaneously physically connecting to independent,

dedicated cables of respective keyboard and analog video outputs of plural computers.

K. All of the claims of the '264 patent require:

a *user-side interface* for physically connecting to a first set of independent, dedicated cables of a first keyboard and an analog video input of a first monitor.

L. All of the claims of the '264 patent require:

an *analog video overlay image generating circuit,* disposed between the computer-side interface and the user-side interface, for producing an analog overlay video signals internal to the switching system.

M. All of the claims of the '264 patent require:

an *analog video overlay circuit,* disposed between the computer-side interface and the user-side interface, for combining (1) a portion of the analog video signals received by the analog video receiving circuit and (2) the analog overlay video signals generated internally to the switching system to form a combined analog signal that is output to the first monitor via the user-side interface.

Appendix B

III. Rival Contentions

A. *The Parties' Arguments*

Each party urges that the Court's construction of the claim elements be informed by the following as set forth by each party:

Defendant's	*Plaintiff's*
1. Means Plus Function Terms	1. No Means Plus Function Terms
Of the terms above, Defendant contends that the terms *programmable switch* ('096 patent), *first interface circuit* ('096 patent), *on-screen programming circuit* ('096 patent), *programmed logic circuit* ('096 patent), *second interface circuit* ('096 patent), *first signal conditioning units* ('176 patent), *second signal conditioning units* ('176 patent), *computer-side interface* ('264 patent), *user-side interface* ('264 patent), *analog video overlay image generating circuit* ('264 patent), and *analog video overlay circuit*	Plaintiff contends that, in the present case, none of the claims in the '096, the '264 or the '176 patents use the word "means." Therefore, there is a presumption that none of the elements of those claims are means-plus-function elements subject to § 112, 6. *See, e.g., Personalized Media Communs., L.L.C. v. ITC*, 161 F.3d 696, 703-04 (Fed. Cir. 1998). Plaintiff further contends that the elements using the word "circuit," are not means-plus-function elements. In this regard. Plaintiff cites *CellNet Data Systems, Inc. v. Itron,*

('264 patent) do not connote sufficient structure without reference to the patent. Defendant claims, therefore, that these terms should be construed as means-plus-function terms under section 112, paragraph 6, and are structurally limited to embodiments disclosed in the patent specification and equivalents.

Inc., 17 F.Supp.2d 1100 (N.D.Cal.1998), which held that the term "circuit means" is a structural term that does not invoke § 112, 6. Thus, Plaintiff claims the term "circuit means" (or simply "circuit") is a structural term having a well-understood meaning to those skilled in the electronics art.

Plaintiff also contends that the claim elements using the terms "interface" and "units" are not devoid of structure requiring resort to § 112, 6. In support, plaintiff contends that these terms have not been redefined or used in any unusual way by the patentee, and cites the Merriam-Webster dictionary, which defines "interface" as "the place at which independent and often unrelated systems meet and act on or communicate with each other." MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (10 ed.), p. 610. Plaintiff further contends that the plain

and ordinary meaning of "Units" connotes a device.

Moreover, Plaintiff contends that the "circuit," "unit" and "interface" claim elements also contain adjectives which further qualify and describe the particular circuit structure recited. Thus, for example, Plaintiff contends that the "on-screen programming circuit" element is structurally more defined than if the claim-drafter had simply chosen the word "circuit," and that the same analysis holds true for the other "circuit" "unit" and "interface" elements recited in the '096, the '264 and the '176 patent claims.

Finally, Plaintiff contends that, as to those claim elements where the claim also describes the location of the structure for performing the function, or how that structure is connected to other structure in the claim, the sufficiency of the structural recitation is

buttressed. Plaintiff cites *Rodime PLC v. Seagate Tech., Inc.*, 174 F.3d 1294, 1303 (Fed. Cir. 1999) and *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 531 (Fed. Cir. 1996), for this proposition.

Plaintiff asserts that, consequently, none of the elements of the patents-in-suit are means-plus-function elements that incorporate limitations from the patent specifications.

2. "Overlaid" Means Laid on Top Of

Defendant contends that wherever in the claims elements the word "overlay" or "overlaid" is used, the ordinary meaning of the term requires that that one signal be laid on top of another on a pixel by pixel basis such that two data signals be displayed "at the same spot on the same screen at the same time."

2. "Overlaid" Means Placed on Screen at Same Time

Plaintiff contends that, of the term "overlay" or "overlaid", the plain and ordinary meaning only requires the possibility that two distinct sources of video data "can" be placed on the screen at the same time such that one image will appear to spread over or cover the other video images. Plaintiff contends that this is supported

by the specification of each of the patents in suit. Particularly, the table at the end of column 12 describes at least seven different ways of displaying the OSD and computer video — (1) system video displayed only, (2) OSD video displayed only, (3) OSD with transparent characters, (4) computer video with solid OSD characters, (5) computer video with transparent OSD characters and solid OSD windows, (6) computer video with opaque OSD characters and windows, and (7) computer video with transparent OSD characters and opaque OSD windows.

Plaintiff further points to column 12, lines 26-38 of the specification of the patents in suit, which describes at least three other ways of displaying the OSD and computer video—for any pixel, (1) only OSD video can be displayed, (2) only computer video can be displayed, and (3) both OSD and computer video can be displayed.

Appendix B

3. Data Packets Includes Both Keyboard and Mouse Signals

Defendant argues that wherever in the claims the term "serial data packet" is used, the claims of the '176 patent and the specifications of the patents-in-suit all require that keyboard and mouse electronic signals be combined into a "keyboard mouse data packet," that includes both signals and that the Examiner in the Statement of Reasons for Allowance in the prosecution history of the '176 patent so limited such claims, and also so limited the entire invention.

3. Data Packets Need Not Include Both Keyboard and Mouse Signals

Plaintiff contends that language limiting the serial data packets to packets containing both keyboard and mouse data does not appear in the claims, and that the Examiner simply stated the that the system "as claimed" was not taught or suggested by the prior art.

Plaintiff further contends that, taken as a whole, the claim language of claim 1 of the '176 patent compels the Court to find that *a data packet* created by the first signal conditioning units actually represents more than the one packet specifically required by the claim because the claim language clearly uses one or more data packets interchangeably, and that therefore each data packet does not contain both mouse a keyboard signals. Finally, Plaintiff contends that, practically,

a workstation user will rarely, if ever, enter keyboard data and mouse data at precisely the same moment. Therefore, keyboard and mouse data will rarely be received at the same time. Plaintiff also attempts to point out that the '176 patent specification describes this very situation and that same concept is embodied in claim 1 of the '176 patent.

B. *Claims Elements Constructions (Disputed)*

Defendant's	*Plaintiff's*
1. *Programmable switch:* a device that **opens or closes** a circuit to form a **direct path** between inputs and outputs **requiring** four pairs of wires for transmission of commands and data, and **comprises** at least a central processing unit, a number of input, switch and output cards, and analog and digital backplanes.	1. *Programmable switch:* **a[ny]** circuit or device that **routes** signals such as keyboard, cursor control device (mouse) and/or video signals between a device such as a workstation and one of a plurality of other devices, such as computers.
2. *First interface circuit:* the keyboard mouse interface	2. *First interface circuit:* **an[y]** interface circuit **includ-**

Appendix B

shown in Figure 2 of the patents in suit.	**ing** a circuit at the boundary of two devices, subsystems or circuits that allow signals to cross that boundary.
3. *On-screen programming circuit:* the circuit **shown** in Figure 12A of the patents in suit.	3. *On-screen programming circuit:* **a[ny]** circuit that, independently of the workstations and the selected computers, produces video signals for display on a video monitor screen.
4. *Second interface circuit:* the keyboard mouse interface **shown** in Figure 3 of the patents in suit.	4. *Second interface circuit:* **an[y]** interface circuit including a circuit at the boundary of two devices, subsystems or circuits that allow signals to cross that boundary.
5. *Programmed logic circuit:* a circuit **comprising** at least a central processing unit, a QUAD UART, and differential line drivers receivers as **shown** in Figure 2 of the patents in suit.	5. *Programmed logic circuit:* **a[ny]** circuit that contains the logic elements for manipulating data and/or making decisions based on a series of instructions.
6. *Overlaid video signals:* video signals generated **within the central switch** from a first source that are "laid or spread	6. *Overlaid video signals:* video signals that appear on the video monitor of a workstation **in combination** with

Appendix B

over or across" or on top of video signals generated from a second source (*i.e.*, the video signal from the first source **is laid on top** of the video signal from the second source on a pixel-by-pixel basis).

or in conjunction with video signals received from another source, where *Video Signals* are signals that can directly control a video monitor such as red, green, blue, horizontal sync, and/or vertical sync signals.

7. *First signal conditioning unit:* the first pod **shown** in Figure 2 of the patents in suit **comprising** at least at least a keyboard mouse interface, a central processing unit, differential line drivers receivers and a synchronization signal extract circuit.

7. *First signal conditioning unit:* **a[ny]** unit that receives signals such as mouse and keyboard signals, creates serial data packets that include the mouse and keyboard signals, and transmits them from a workstation toward a switch.

8. *A serial data packet:* a **single** data packet comprising at least keyboard and mouse electronic signals.

8. *A Serial data packet:* **number[s]** of packets containing keyboard and/or mouse data signals, but with **no one** packet necessarily **containing** both.

9. *Central crosspoint switch:* a device that **opens or closes** a circuit to form a **direct path** between inputs and outputs **requiring** four pairs of wires for transmission of commands

9. *Central crosspoint switch:* **a[ny]** device that **routes** signals from one or more inputs to one or more outputs, such as keyboard and mouse signals, and as to which the

Appendix B

and data, and **comprises** at least a central processing unit, a number of input, switch and output cards, and analog and digital backplanes.

routing can be **changed,** and that inter-changes or exchanges serial data packets.

10. *Second signal conditioning unit:* the second pod **shown** in Figure 3 of the patents in suit, and **comprises** at least a keyboard mouse interface, a central processing unit, differential line drivers receivers and a synchronization signal combine circuit.

10. *Second signal conditioning unit:* **a[ny]** unit that receives serial data packets and supplies them to a remotely located computer, and that receives video signals produced by remote computer systems and transmits the video signals toward a switch.

11. *Computer-side interface:* the second pod **shown** in Figure 3 of the patents in suit, and **comprises** at least a keyboard mouse interface, a central processing unit, differential line drivers receivers and a synchronization signal combine circuit.

11. *Computer-side interface:* **an[y]** interface on the computer-side of the switching system.

12. *User-side interface:* the first pod **shown** in Figure 2 of the patents in suit **comprising** at least at least a keyboard mouse interface, a central processing unit, differential

12. *User-side interface:* **an[y]** interface on the workstation-side of the switching system.

line drivers receivers and a synchronization signal extract circuit.

13. *Analog video overlay image generating circuit:* the portion of the circuit **shown** in Figure 12A of the patents in suit that produces the internal video signals within the central switch, and comprises at least an on-screen processor, a horizontal and vertical synchronization signal generator, a synchronization signal switch and a synchronization polarizer, and whereby *Overlay* means to lay or spread over or across or on top of *(i.e.*, the video signal from the first source **is laid on top** of the video signal from the second source on a pixel-by-pixel basis), and where this function must be performed within the central switch.

13. *Analog video overlay image generating circuit:* **an[y]** interconnected combination of electrical devices and conductors that generates video images that, when displayed on a video monitor with other video images, **will appear** to spread over or cover the other video images.

14. *Analog video overlay circuit:* the portion of the circuit **shown** in Figure 12A of the patents in suit that signals from analog video

14. *Analog video overlay circuit:* an[y] interconnected combination of electrical devices and conductors that processes analog overlay

receiving circuit and the analog video signals generated by the analog video overlay image generating circuit, and **comprises** at least an overlay control logic circuit and a set of six tri-state buffers, and whereby *Overlay* means to lay or spread over or across or on top of (i.e., the video signal from the first source **is laid on top** of the video signal from the second source on a pixel-by-pixel basis), and where this function must be performed within the central switch.

video signals with other video signals to create an image for display on a video monitor where the overlay video signals **appear** on the video monitor to spread over or cover the other video signal.

IV. Applicable Principles for Construction

A. *Generally*

Patent infringement claims require a two-step analysis: First, a claim must be properly construed to determine its scope and meaning. The first step is a question of law. *Markman v. Westview Instruments*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Second, the properly construed claims must be compared to the accused device(s). This second determination is a question of fact. *Id.*

For each of the claims asserted, the Court must determine the meaning of the claim, but only to the extent necessary to resolve the controversy. *Vivid Techs. v. American Science &*

Eng'g, 200 F.3d 793, 803 (Fed. Cir. 1999). The accused products herein will be held not to infringe any of the asserted claims. Therefore, the Court only construes those claim elements, and considers only those of the parties' contentions, that are necessary to this result.

It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history. *See Markman*, 52 F.3d at 979. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). *See Renishaw PLC v. Marposs Societa, per Azioni*, 158 F.3d 1243, 48 USPQ2d 1117, 1120-21 (Fed. Cir. 1998).

First, the initial step is to look to the words of the claims themselves, both asserted and non-asserted, to define the scope of the patent invention. *Vitronics Corp.*, 90 F.3d at 1582. An examination of a patent claim requires a review of the precise words chosen by the patentee(s). Words in a claim are usually given their ordinary meaning. Where a technical term is used in a patent claim, such a term is interpreted as having the meaning that it would be given by persons skilled in the field of the alleged invention.

Second, it is necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. *Vitronics Corp.*, 90 F.3d at 1582. The specification acts as a dictionary when it expressly defines terms used in the claims or when

it defines terms by implication. *Id.* at 1582. " 'Claims must be read in view of the specification, of which they are a part.' " *Id.* at 1582 (quoting *Markman,* 52 F.3d at 979). The specification is always highly relevant to the claim construction analysis, and usually, it is dispositive; it is the single best guide to the meaning of a disputed term. *Id.*

The drawings or figures of the patent are considered with the specification in interpreting claim language. *Wright Med. Tech., Inc. v. Osteonics Corp.,* 122 F.3d 1440, 1443 (Fed. Cir. 1997). The claim interpretation being asserted by a patentee must be supported in the specification in order to comply with the written description requirement under 35 U.S.C. § 112, ¶ 1 (1984), which states, in relevant part: "The specification shall contain a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art . . . to make and use the same."

Third, the court may also consider the prosecution history of the patent, if, as here, it is in evidence. *Vitronics Corp.,* 90 F.3d at 1582. The relevant prosecution history to be examined for claim construction includes the prosecution histories of all patents from which the patent in suit is a continuation. *Mark I Mktg. Corp.,* 66 F.3d at 291; *AbTox Inc. v. Exitron Corp.,* 122 F.3d 1019, 1027 (Fed. Cir. 1997) (prosecution history of parent application relevant to determining claim scope of patent in suit); *Jonsson v. Stanley Works,* 903 F.2d 812, 819 (Fed. Cir. 1990) (claims interpreted in light of the prosecution of a related application having the same parent).

Appendix B

If analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence, *Vitronics Corp.*, 90 F.3d at 1583. Extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles. *Id.* at 1584. Extrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language. *Id.*

B. *As Related to "Serial Data Packets"*

The Court concludes that the wording of the claims of the '176 patent and the specifications of the patents-in-suit all require that a serial data packet is such that keyboard and mouse electronic signals *could* be combined into a single "keyboard/mouse data packet".

In this regard, Claim 1 of the '176 patent states the following limitation:

> a plurality of first signal conditioning units coupled to the workstations for receiving electronic signals produced by the keyboard and mouse and for creating *a serial data packet that includes the electronic signals* (emphasis added).

Moreover, the specification of the patents in suit refers, at col. 1, lns. 55-65, to the data packet as the keyboard mouse packet, and further explains, at col. 3, lns. 45-49, that:

Appendix B

> [t]he CPU 80 then reads the digitally buffered keyboard and mouse signals from the keyboard mouse interface 82 and converts the *signals* into *a data packet* that is transmitted to the remote computer (emphasis added).

The prosecution history of the '176 patent, more than simply being consistent with the above conclusion, requires it. In this regard, In the '176 patent, the Examiner issued a Statement of Reasons for Allowance that stated:

> [t]he prior art of record does not teach nor fair suggest the system arrangement as claimed *with circuitry for creating serial data packet from keyboard and mouse electronic signals,* and crosspoint switch for connecting keyboard/mouse/ video monitor from a number of workstations to plurality of remote computer systems (emphasis added).

The Examiner's reasons for allowance are absolutely binding on the patentee, absent an objection by the patentee thereto. *See, e.g., Warner-Jenkinson Co. v. Hilton Davis Chem. Co.,* 520 U.S. 17, 41 USPQ2d 1865 (1997); *Markman v. Westview Instruments,* 52 F.3d 967, 34 USPQ2d 1321 (Fed. Cir. 1995), *aff'd,* 517 U.S. 320, 38 USPQ2d 1461 (1996); *Vitronics Corp.,* 90 F.3d at 1573; *Zenith Labs., Inc. v. Bristol-Myers Squibb Co.,* 19 F.3d 1418, 30 USPQ2d 1285 (Fed. Cir. 1996); *see also 65 F.R.* 54604 (2000) (changing the written text of the Manual of Patent Examining Procedures to reflect the cited case law); *Southwest Software, Inc. v. Harlequin Inc.,* 226 F.3d 1280, 1296, 56 USPQ2d 1161, 1173

(Fed. Cir. 2000) (stating that "it does not seem to us to be asking too much to expect a patentee to check a patent when it is issued in order to determine whether it contains any errors that require the issuance of a certificate of correction").

Although the Court concludes that a data packet is such that keyboard and mouse electronic signals could be combined into a single "keyboard/mouse data packet," the Court does not accept an interpretation that every data packet must always include both signals. The '176 patent specifically states that byte 96 in Figure 2A identifies the type of data in the packet ('176 patent, col. 3, lines 53-55). If the packet always included both signals, then there would be no need to specify the type of data in the packet. Further, common-sense dictates that while a serial data packet may contain both types of signals, it may also contain only keyboard or only mouse data. In this regard, a workstation user will normally not enter keyboard data and mouse data at precisely the same moment, Therefore, the packet will in most instances contain only mouse or only keyboard signals, but may contain both on occasion. In fact, the '176 patent specification, at col. 3, lines 43-49, describes this very situation:

> As the user moves the mouse or types on the keyboard, the keyboard/mouse interface 82 generates an interrupt signal that is fed to the CPU 80. The CPU 80 then reads the digitally buffered keyboard and mouse signals from the keyboard/mouse interface 82 and converts the signals into a data packet that is transmitted to the remote computer.

Thus, as a conclusion to be made, the claims and specification, as worded, and the prosecution history require the conclusion reached by the Court that a serial data packet as recited in the claims, is one that can, but need not, include both keyboard and mouse signals. (As we shall see, the accused products cannot create such data packets as are recited in the claims— *i.e.*, those that can include both keyboard and mouse signals).

C. *As Related to "Overlay" and "Overlaid Video Signals"*

All of the overlay claims either contain the limitation of "producing *overlaid video signals* for display on the video monitor (emphasis added)" or otherwise incorporate the term *overlay* or *overlaid* in an element. The Court concludes that to one of ordinary skill in the art, the plain or accustomed meaning of "overlaid" would require the ability to place two separate images (or video signals) on top of one another such that they would both be at the same spot on the screen at the same time.

While Plaintiff attempts to convince the Court that *overlay* only requires the *appearance* that one image or signal be spread over or covers the other, the intrinsic evidence shows that even the Plaintiff knows otherwise.

In this regard, the prosecution history of the '842 (grandfather patent) shows that, in the Second Preliminary Amendment in the '193 application on January 14, 1997, Plaintiff entered twelve (12) new claims. Although the entry was later canceled, the then-new claim 26, in the preamble,

recited "A circuit for producing video signals over video signals that are produced by a remote computer." Without question, this indicates that Plaintiff understood that "overlay" means having the ability to physically place one signal over another.

Thus, as a conclusion to be made, the claims, as worded, and the prosecution history resolve the question of the conclusion to be made by the Court that *Overlaid Video Signals* or *Overlay* as recited in the claims, calls for the ability to place two separate images (or video signals) one on top the other such that they would both be at the same spot on the screen at the same time. (As we shall see, the accused products cannot produce such *overlaid video signals* or perform *overlay* as recited in the claims—*i.e.*, in that they cannot lay or spread over or across or on top of each other two different video signals).

D. *Means-Plus-Function*

As is typical in a patent case, here Defendant disputes the meaning of some fourteen claims terms, arguing, that many of these terms are a means-plus-function elements per 35 U.S.C. § 112, and should be limited to the structure disclosed in the preferred embodiment and its equivalents in accordance with Paragraph 6. Therefore the Court here determines, as to each of these elements, whether Section 112, Paragraph 6 applies.

Appendix B

35 U.S.C. § 112, ¶ 6 (1984) provides as follows:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

A means-plus-function limitation contemplated by 35 U.S.C. § 112, ¶ 6 recites a function to be performed rather than definite structure or materials performing that function. *Chiuminatta Concrete Concepts v. Cardinal Indus.*, 145 F.3d 1303, 1307 (Fed. Cir. 1998). For a means-plus-function limitation to read literally on an accused device, the device must employ means identical to or the equivalent of the structures, material, or acts described in the patent specification or the drawings. Consequently, whether a claim term is a means-plus-function element to which Paragraph 6 applies is often dispositive in an infringement suit.

"[I]f the word 'means' appears in a claim element in combination with a function, it is presumed to be a means-plus-function element . . ." *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1318 (Fed. Cir. 1999). The presumption is overcome if (1) the claim element that uses the word 'means' recites no function corresponding to the means or (2) if the claim element recites sufficient structure or material for performing the claimed function. *Rodime PLC,* 174 F.3d at 1302.

Conversely, a claim element without the word "means" is presumed to not be a means-plus-function element and not subject to Paragraph 6. *Micro Chem. Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1257 (Fed. Cir. 1999). However, that presumption is overcome where the element "nonetheless relies on functional terms rather than structure or material to describe performance of the claimed function." *Id.* A central inquiry under this formulation is to ascertain what structure is necessary to perform the function specified in the claim element. "In deciding whether either presumption has been rebutted the focus remains on whether the claim as properly construed recites sufficient definite structure to avoid the ambit of § 112, ¶ 6." *Personalized Media,* 161 F.3d at 704.

Here, none of the disputed elements in the claims uses the word "means." To begin with, the Court presumes that none of the elements are expressed in means-plus-function language and that Paragraph 6 does not apply to any. Thus, for each element claimed by Defendant to be a means-plus-function element, the Court endeavors to determine whether the presumption that Paragraph 6 does not apply has been rebutted. In making this determination, the Court may examine the relevant intrinsic evidence and any relevant extrinsic evidence. *Id.* at 704-05.

However, after examining such evidence, the Court concludes that for each of the elements *first interface circuit* ('096 patent), *on-screen programming circuit* ('096 patent), *programmed logic circuit* ('096 patent), *second interface circuit* ('096 patent), *first signal conditioning units* ('176 patent), *second signal conditioning units* ('176 patent), *computer-side interface* ('264 patent), *user-side interface*

('264 patent), *analog video overlay image generating circuit* ('264 patent), and *analog video overlay circuit* ('264 patent), the presumption that the element is not a means-plus function element is rebutted.

For each of these terms, the element recites a function or functions corresponding to the means. Further, for each of these terms, other than the term itself, the respective claim does not attempt to recite any structure or material for performing the respective function(s) recited. Thus, the question in each case is whether the recited term in the respective claim element itself connotes a definite structure sufficient to perform the respective recited function.

Plaintiff asserts that elements using the words "circuit," "interface," and "units" are not means-plus-function elements simply because these words are structural terms having a well-understood meaning to those skilled in the electronics art. The Court disagrees with this assessment.

Plaintiff refers the Court to *CellNet Data* for the proposition that "those skilled in the art would understand the term 'circuit means' [and therefore the word 'circuit'] as a structural rather than a means-plus-function element." 17 F. Supp. 2d at 1107. In that case, the Court's conclusion rested on the dictionary definition of "circuit" as connoting "the combination of a number of electrical devices and conductors that, when connected together to form a conducting path, fulfill a desired function." *Id.* This Court is not persuaded by the Court's conclusion in *CellNet Data* because to the degree that the term "circuit" connotes any structure, this Court finds it too generic, as the inquiry is not

whether a term has a commonly understood definition (as one that may be found in a dictionary), but rather whether the commonly understood definition, if one exists, connotes sufficient structure. In this regard, the Court agrees with the Court's view of the word "circuit" in *Nilssen v. Motorola,* 80 F. Supp. 2d 921 (E.D. Ill. 2000), where the Judge stated: "it takes no electronic sophistication at all to understand that electrical circuits are virtually infinite in number. It is not that 'circuit' is non-generic—it is rather that it is so generic that by itself it conveys no structure at all." *Id.* at 929.

Plaintiff contends that the term "units" is similarly not devoid of structure requiring resort to paragraph 6. The Court concludes that this is even a more generic term than "circuit." At Plaintiff's urging, the Court again looks to Merriam-Webster's dictionary, which, in one instance defines "unit" as "a piece or complex of apparatus serving to perform one particular function." MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (10 ed.). Plaintiff argues that this connotes a device. The Court agrees that this is *a* device, but how much more generic can one get? If one could circumvent paragraph 6 in a claim element where no structure was recited by simply replacing the word "means" with the word "device" or with the word "unit," a claim element would rarely, if ever, be construed as a means-plus-function element. The Court does not accept that such an easy method of escaping the coverage of paragraph 6 is permitted. Without more, the term "units" does not connote any structure.

The word "interface," where it is used, also does not connote sufficient structure to perform the functions recited. Merriam -Webster's dictionary defines the word as "the place

[or point] at which independent and often unrelated systems meet and act on or communicate with each other." This is hardly connotive of structure since the point or the place of interaction or communication is hardly a structural device. Plaintiff provides an additional definition from Merriam-Webster's dictionary: "the means by which interaction or communication is achieved at an interface." The Court finds that this definition can be recast as follows "the means by which interaction or communication is achieved at a point at which independent and often unrelated systems meet and act on or communicate with each other." The word "interface" does not, without more, connote a structure or a set of structures.

Thus, the Court concludes that claim elements using the words "circuit," "interface," and "units" do not simply by the use of these words connote sufficient structure to perform the relevant functions recited in the element.

Plaintiff further contends that the "circuit," "unit" and "interface" claim elements also have adjectives which further qualify and describe the particular structure recited. Thus, Plaintiff contends that for example, the *on-screen programming circuit* is structurally more defined than if the claim drafter has simply chosen the word "circuit," and that the same analysis holds true for other such elements in the patent claims.

The Court disagrees and concludes that any adjectives qualifying the word's "circuit," "unit" and "interface" in the claim elements, with the exception of *programmed logic,* do not furnish any small semblance of definite structure to

the otherwise indefinite words. On the contrary, each adjective simply recites a function of the element or its general location: *first interface, on-screen programming, second interface, first signal conditioning, second signal conditioning, computer-side, user-side, analog video overlay image generating,* and *analog video overlay.*

Thus for example, to determine whether the adjective "*on-screen programming* " saves the term "circuit" from the providence of indefiniteness, the Court considers, at Plaintiff's suggestion, the dictionary definitions of these terms. Merriam-Webster's dictionary defines the term "program" as "a plan for the programming of a mechanism (as a computer)" or as "a sequence of coded instructions that can be inserted into a mechanism (as a computer)." It defines the term "screen" as "the surface on which the image appears in an electronic display (as in a television set, radar receiver, or computer terminal)." However, neither of these definitions connotes any structure in the instant context. While the term "screen" would ordinarily sufficiently connote structure, the term "on-screen programming circuit" uses the word "on-screen" to describe the function that the circuit performs, rather than use the word "screen" in its structural capacity. The term "programming" also describes a function, that of producing "a sequence of coded instructions". In all, the terms "on-screen programming" do little more than describe the recited function in this claim element, that of "produc[ing] video signals for display on the video monitor." Consequently, this element is a means-plus-function element. The qualifiers *first interface, second interface, first signal conditioning, second signal conditioning, computer-side, user-side, analog video overlay image generating,* and *analog video overlay* fare no better.

Appendix B

As to the *programmed logic circuit,* it does connote some structure, albeit insufficient in the instant circumstance. In this regard, Claim 1 of the '096 patent requires that this circuit perform; the stated functions of "transmit[ing] the keyboard and cursor control device signals to the programmable switch;" "control[ing] the on-screen programming circuit to produce the video signals upon the detection of a predefined input from a user of the workstation;" "detect[ing] keyboard or cursor control device signals received while the on-screen programming circuit is producing video signals on the video monitor"; and "control[ing] the programmable switch in response to the keyboard or cursor control device signals detected."

The term "program" was discussed above, and we concluded that it does not connote sufficient structure by itself. Here however, the claim recites the additional term "logic." At plaintiff suggestion, the Court looks to the *McGraw Hill Dictionary of Scientific and Technical Terms,* which provides a definition of logic as a "[g]eneral term for the various the various types of gates, flip-flops, and other on/off circuits used to perform problem functions in a digital computer." This definition suggests that the term logic circuit evokes a meaning to those skilled in the electrical arts connotive of various structures. Particularly, the term at the very least suggests that it is a type of "on/off circuit." Even though quite a number of circuits could perform all of the stated functions, in each case, the term "logic circuit" while it does not specifically evoke a particular structure, conveys to one skilled in the art a variety of structures known as "on/off circuits." Further, while the term "program" itself connotes no structure, in this case, the adjective

"programmed" serves to further limit the type of logic circuits that satisfy the claim to those that make decisions based on " a sequence of coded instructions."

Nonetheless, an on/off circuit that makes decisions based on a sequence of coded instructions is still way too imprecise of a structural character to support the ambitious program of the four functions stated, as nearly a limitless array of such circuits could be concocted. As, *Laitram v. Rexnord, Inc.*, 939 F.2d 1533 (Fed. Cir. 1991), emphasizes, the "recitation of some structure in a means plus function element does not preclude the applicability of section 112(6)." *Id.* at 1536. Hence, the Court concludes that with regard to this element, the presumption that Paragraph 6 does not apply is rebutted.

Certain of the "circuit," "unit", and "interface" claims elements recite position within the system. The Court must say that these additional location limitations do not save the otherwise functional elements from the applicability of paragraph 6. For example, Claims 1, 11, 20 and 26 of the '096 patent each require *second interface circuit* to be "disposed between the programmable switch and the selected computer." Plaintiff argues that "[t]he sufficiency of the structural recitation is buttressed where the claim also describes where the structure for performing the function is located, or how the structure is connected to other structure in the claim." Plaintiff cites *Rodime PLC,* 174 F.3d at 1303 ("The claim also recites the specific location and interconnection of these structural sub-elements"), and *Cole,* 102 F.3d at 531 ("The claim describes not only the structure that supports the tearing function, but also its location . . . and extent. . . .") for this proposition. This Court would note,

however, that, in *Rodime PLC,* "the claim provide[d] a list of the structure underlying the means . . . a pivot shaft . . . a positioning arm . . . a bearing assembly . . . a stepper motor." *Rodime,* 174 F.3d at 1303. Similarly, in *Cole,* the claim "describe[d] the structure supporting the tearing function (*i.e.,* perforations)." *Cole,* 102 F.3d at 531. Here however, no sufficient structure is described for any of the relevant claim elements. Therefore there is no structural recitation to be buttressed.

In conclusion, all of the "circuit," "unit", and "interface" claim elements are means-plus-function elements, limited to the structures disclosed in specification and drawings for performing the relevant function or functions, and their equivalents. (As we shall see, the accused products do not contain any of these claim elements—*i.e.,* in that no product contains all the limitations of any of these elements, as imposed by the specification and the drawings).

V. The Court's Construction of the Disputed Items

Based on the foregoing principles and reasoning, the Court has construed the disputed claim terms as follows:

A. *Programmable Switch* is a programmable device that opens or closes a circuit to form a direct path between inputs and outputs.

B. *First interface circuit* is a means-plus-function element. The '096 patent specification does not expressly disclose a *first interface circuit,* but rather discloses a structure corresponding to the *first interface*

circuit limitation at col. 3, lns. 41-45, and is shown in Figure 2 as element 82 *Keyboard/Mouse Interface.* The Court construes the *first interface circuit* required by claims 1, 11, 20 and 26 of the '096 patent to cover only the *Keyboard/Mouse Interface* disclosed at col. 3, lns. 41-45 and figure 2 as element 82, which is a separate and distinct unit that performs some interface function, and its equivalents.

C. *On-Screen Programming Circuit* is a means-plus-function element. The '096 patent specification discloses the *on-screen programming circuit* limitation at col. 10, ln. 66 through col. 13, ln. 13, and is shown in Figures 2 and 12A as element 99. The Court construes the *on-screen programming circuit* required by Claims 1, 11, 20 and 26 of the '096 patent to cover only the structure disclosed at col. 10, ln. 66 through col. 13, ln. 13, and in Figures 2 and 12A as element 99, and its equivalents.

D. *Second interface circuit* is a means-plus-function element. The '096 patent specification does not expressly disclose a *second interface circuit,* but rather discloses a structure corresponding to the *second interface circuit* limitation at col. 5, lns. 13-27, and is shown in Figure 3 as element 134 also named *Keyboard/ Mouse Interface.* The Court construes the *first interface circuit* required by claims 1, 11, 20 and 26 of the '096 patent to cover only the *Keyboard/Mouse Interface* disclosed at col. 3, lns. 41-45 and figure 2 as element 82, which is a separate and distinct unit that performs some interface function, and its equivalents.

Appendix B

E. *Programmed logic circuit* is a means-plus-function element. The '096 patent specification does not expressly disclose a *programmed logic circuit,* but rather discloses a structure corresponding to the *programmed logic circuit* limitation at col. 3, lns. 38-49, col. 3, ln. 65 through col. 4, ln. 12, which is shown in Figure 2 as at least the combination of elements 80 (a central processing unit), 84 (a QUAD UART), 84a-d (four leads) and 88 (differential line drivers receivers). The Court construes the *programmed logic circuit* required by Claims 1, 11, 20 and 26 of the '096 patent to cover only the structure disclosed col. 3, lns. 38-49, col. 3, ln. 65 through col. 4, ln. 12, and in Figure 2 as at least the combination of a central processing unit, a QUAD UART, four leads and differential line drivers receivers, and this structures equivalents.

F. *Overland video signals* are video signals from a first source that are "laid or spread over or across" or on top of video signals generated from a second source such that the video signal from the first source could be laid on top of the video signal from the second source on a pixel-by-pixel basis.

G. *First signal conditioning units* is a means-plus-function element. The '196 patent specification discloses the *first signal conditioning units* limitation at col. 3, lns. 6-10 and 30-49, which is shown in Figures 1 and 2 as element 70. The Court construes the *first signal conditioning units* required by '196 patent to cover only the structure disclosed at col. 3, lns. 6-10 and 30-49, and in Figures 1 and 2 as element 70,

comprising at least at least a keyboard/mouse interface, a central processing unit, differential line drivers/receivers and a synchronization signal extract circuit.

H. A *serial data packet* a single data packet that is capable of including at least both keyboard and mouse electronic signals.

I. *Central crosspoint switch* is a centrally located device that includes a number of bidirectional inputs and outputs and opens and closes a circuit to form a direct path between them.

J. *Second Signal conditioning Units* is a means-plus-function element. The '176 patent specification discloses the second signal conditioning units limitation at col. 1, lns. 60-65, col.3, lns. 11-18 and col. 5, ln. 13 through col. 6, ln. 14, and is shown in Figures 1 and 3 as element 76. The Court construes the *second signal conditioning units* required by '196 patent to cover only the structure disclosed at col. 1, lns. 60-65, col.3, lns. 11-18 and col. 5, ln. 13 through col. 6, ln. 14, and in Figures 1 and 3 as element 76, comprising at least a keyboard/mouse interface circuit, a central processing unit, differential line drivers/receivers and a synchronization signal combine circuit.

K. *Computer-side interface* is a means-plus function element. The '264 patent specification does not expressly disclose a computer-side interface, but rather discloses a structure corresponding to the computer-side interface limitation at col. 1, lns. 60-65, col.3,

lns. 11-18 and col. 5, ln. 13 through col. 6, ln. 14, and in Figures 1 and 3 as element 76. The Court construes the *computer-side interface* required by '264 patent to cover only the structure disclosed at col. 1, lns. 60-65, col.3, lns. 11-18 and col. 5, ln. 13 through col. 6, ln. 14, and in Figures 1 and 3 as element 76, comprising at least a keyboard/mouse interface circuit, a central processing unit, differential line drivers/receivers and a synchronization signal combine circuit.

L. *User-side interface* is a means-plus function element. The '264 patent specification does not expressly disclose a computer-side interface, but rather discloses a structure corresponding to the computer-side interface limitation at col. 3, lns. 6-10 and 30-49, which is shown in Figures 1 and 2 as element 70. The Court construes the user-side interface required by '264 patent to cover only the structure disclosed at col. 3, lns. 6-10 and 30-49, and in Figures 1 and 2 as element 70, comprising at least at least a keyboard/ mouse interface, a central processing unit, differential line drivers/receivers and a synchronization signal extract circuit.

M. Analog video overlay image generating circuit is a means-plus function element. The '264 patent specification does not expressly disclose an analog video overlay image generating circuit, but rather discloses a structure corresponding to the analog video overlay image generating circuit limitation at col. 11, ln. 2 through col. 12, ln 18, and is shown in Figure 12A as at least the combination of elements 358 (internal

sync generator), 360 (sync switch), 362 (sync polarizer) and 364 (on-screen processor). The Court construes the *analog video overlay image generating circuit* required by the '264 patent, as the structure disclosed at col. 11, ln. 2 through col. 12, ln 18, and in Figure 12A as at least the comprising an internal sync generator (element 368); a sync switch (element 364); a sync polarizer (element 362); and 364 (an on-screen processor). The Court further construes this element as producing analog (as opposed to digital) overlay images, where *overlay* means to lay or spread over or across or on top of such that the video signal from the first source could be laid on top of the video signal from the second source on a pixel-by-pixel basis.

N. *Analog video overlay circuit* is a means-plus function element. The '264 patent specification does not expressly disclose an analog video overlay circuit, but rather discloses a structure corresponding to the analog video overlay circuit limitation at col. 12, ln. 15 through col. 13, ln 3 and at the table at the bottom of column 12, and is shown in Figure 12A as at least the combination of elements 352, 354, 356 (tri-state buffers), 366 (overlay control logic circuit), and 368, 370 and 372 (tri-state buffers). The Court construes the *analog overlay circuit* required by the '264 patent, as the structure disclosed at col. 12, ln. 15 through col. 13, ln 3, at the table at the bottom of col. 12, and in Figure 12A as at least the comprising two sets of three tri-state buffers (elements 352, 354, 356 and 368, 370 and 372) an overlay control logic circuit (element 366). The Court further construes this element as overlaying

a portion of the analog video signals from analog video receiving circuit and the analog video signals generated by the analog video overlay image generating circuit analog overlay image, where *overlay* means to lay or spread over or across or on top of such that the video signal from the first source could be laid on top of the video signal from the second source on a pixel-by-pixel basis.

VI. Findings of Fact

A. *Raritan's Paragon System*

1. The Paragon system DOES NOT have a programmable switch. A programmable switch is defined according to the patents-in-suit as a programmable device that opens or closes a circuit to form a direct path between inputs and outputs. Instead, the Paragon system contains a matrix switching unit ("MSU") that contains no path set up between its inputs and outputs.

2. The Paragon system DOES NOT contain a first interface circuit. A first interface circuit is defined according to the patents-in-suit as the keyboard/mouse interface disclosed at col. 3, lns. 41-45 shown Figure 2 as element 82 of the patents-in-suit, a separate unit for receiving and conditioning keyboard and cursor control device signals from the workstation, and performing some interface function. Instead, the Paragon system merely comprises connectors and wires, not an interface circuit, such as the keyboard/mouse interface circuit.

Appendix B

3. The Paragon system DOES NOT contain an on-screen programming circuit. An on-screen programming circuit is defined according to the patents-in-suit as the circuit disclosed at col. 10, ln. 66 through col. 13, ln. 13, and shown in Figures 2 and 12A of the patents in suit as element 99 that produces video signals internal to the central switch, and combines these internally generated video signals with a portion of the video signals from the remote computer. Instead, the Paragon system only contains an on-screen processor (*e.g.*, a Myson MTV018 chip), which does not comprise all of the circuitry nor can it perform all the functions of the claimed on-screen programming circuit.

4. The Paragon system DOES NOT have a programmed logic circuit. A programmed logic circuit is defined according to the patents-in-suit as a circuit that transmits the keyboard and cursor control device signals to the programmable switch, controls the on-screen programming circuit to produce the video signals upon the detection of a predefined input from a user of the workstation, operates to detect keyboard or cursor control device signals received while the on-screen programming circuit is producing video signals on the video monitor, and controls the programmable switch in response to the keyboard or cursor control device signals detected, the programmed logic circuit comprising at least a central processing unit, a quad UART, and differential line drivers/receivers as shown in Figure 2 of the patents in suit. The Paragon system merely contains a central processing unit.

Appendix B

5. The Paragon system DOES NOT contain a second interface circuit. A second interface circuit is defined according to the patents-in-suit as the keyboard mouse interface disclosed at col. 5, lns. 13-27, and shown in Figure 3 as element 134, a separate and distinct unit for supplying the keyboard and cursor control device signals routed through the programmable switch to the selected computer. Instead, the Paragon system comprises a central processing unit, not an interface circuit, keyboard mouse interface circuit, for directly supplying keyboard and cursor control device signals to a selected computer.

6. The Paragon system DOES NOT have a programmed microprocessor coupled to a first interface circuit. A programmed microprocessor is defined according to the patents-in-suit as any known device that is capable of transmitting the keyboard and cursor control device signals to the programmable switch, controlling the on-screen programming circuit to produce the video signals, detecting keyboard or cursor control device signals, and controlling the programmable switch. Although the Paragon system contains a central processing unit, it does not have a first interface circuit as discussed above nor does it have any interface circuitry that is separate and distinct from the central processing unit.

7. The Paragon system DOES NOT have a processor coupled to a first interface circuit. A processor is defined as any known device that is capable of transmitting the keyboard and cursor control device signals to the

programmable switch, controlling the on-screen programming circuit to produce the video signals, detecting keyboard or cursor control device signals, and controlling the programmable switch. Although the Paragon system contains a central processing unit, it does not have a first interface circuit as discussed above nor does it have any interface circuitry that is separate and distinct from the central processing unit.

8. The Paragon system CANNOT produce overlay video signals or overlaid video signals. Overlay or overlaid video signals are defined according to the patents-in-suit as laid or spread over or across or on top of video signals generated from a second source such that the video signal from the first source could is laid on top of the video signal from the second source on a pixel-by-pixel basis. Instead, the Paragon system is only capable of selecting one video signal from one video source at a given time for display on the video monitor. That is, the Paragon system cannot combine or overlay (*i.e.*, lay or spread over or across or on top of) the video signal from a first source on top of the video signal from a second source on a pixel-by-pixel basis.

9. The Paragon system DOES NOT contain a first signal conditioning unit. A first signal conditioning unit is defined according to the patents-in-suit as a device for receiving the serial data packets transmitted on one of the plurality of second communication links switch and for supplying the data packets to a keyboard and mouse input of the remote computer, the plurality of

second signal conditioning units receiving video signals produced by the remote computer systems and transmitting the video signals to the central switch on one of the plurality of second communication links, where each single serial data packet is capable of including both the keyboard and mouse electronic signals, the device covering only the structure disclosed at col. 3, lns. 6-10 and 30-49, and in Figures 1 and 2 as element 70, and thus comprising at least a keyboard/ mouse interface circuit, a central processing unit, differential line drivers/receivers and a synchronization signal extract circuit. Instead, the Paragon system contains a user station ("UST") which does not comprise at least the keyboard/mouse interface circuit, nor can it create a single serial data packet including both the keyboard and mouse electronic signals.

10. The Paragon system DOES NOT create any serial data packets, where a serial data packet is defined according to the patents-in-suit as one that is capable of containing both keyboard and mouse electronic signals. Instead, the keyboard, mouse and numerous other signals in the Paragon system are always in separate and distinct packets.

11. The Paragon system DOES NOT have a central crosspoint switch. A central crosspoint switch is defined according to the patents-in-suit as a device that includes a number of bidirectional inputs and outputs and opens and closes a circuit to form a direct path between them. Instead, the Paragon product contains a sophisticated MSU that contains no path set up between its inputs and outputs.

Appendix B

12. The Paragon system DOES NOT contain a second signal conditioning unit. A second signal conditioning unit is defined according to the patents-in-suit as a device for receiving serial data packets from the central switch, for supplying serial data packets to a keyboard and mouse inputs of the remote computer, for receiving video signals produced by the remote computer systems and for transmitting the encoded video signals to the central switch, the device covering only the structure disclosed at col. 1, lns. 60-65. col.3, lns. 11-18 and col. 5, ln. 13 through col. 6, ln. 14, and in Figures 1 and 3 as element 76, and thus comprising at least a keyboard mouse interface circuit, a central processing unit, differential line drivers receivers and a synchronization signal combine circuit. Instead, the Paragon system contains a computer interface module ("CIM") which does not comprise at least the keyboard mouse interface circuit.

13. The Paragon system DOES NOT contain a computer-side interface. A computer-side interface is defined according to the patents-in-suit as the A *computer-side interface* is defined according to the patents-in-suit as the second signal conditioning circuit or pod 76 disclosed in the '264 patent for simultaneously physically connecting to independent, dedicated cables of respective keyboard and analog video outputs, the device comprising at least a keyboard/mouse interface circuit, a central processing unit, differential line drivers/receivers and a synchronization signal combine circuit. Instead, the Paragon system contains a computer interface module ("CIM")

which does not comprise at least the keyboard/mouse interface circuit.

14. The Paragon system DOES NOT contain a user-side interface. A user-side interface is defined according to the patents-in-suit as the first signal conditioning circuit or pod 70 disclosed in the '264 patent, which is a device for physically connecting to a first-set of independent, dedicated cables of a first keyboard and an analog video input of a first monitor, the device comprising at least a keyboard/mouse interface circuit, a central processing unit, differential line drivers/receivers and a synchronization signal extract circuit. Instead, the Paragon system contains a user station ("UST") which does not comprise at least the keyboard/mouse interface circuit.

15. The Paragon system DOES NOT have an analog video overlay image generating circuit. An analog video overlay image generating circuit is defined according to the patents-in-suit as the portion as the structure disclosed at col. 11, ln. 2 through col. 12, ln 18, and in Figure 12A of the patents-in-suit as comprising at least an on-screen processor, a horizontal and vertical synchronization signal generator, a synchronization signal switch and a synchronization polarizer, that produces analog overlay video signals internal to the switching system, where *overlay* means to lay or spread over or across or on top of such that the video signal from the first source can be laid on top of the video signal from the second source on a pixel-by-pixel basis. As discussed above, the Paragon system cannot produce

overlay or overlaid video signals. Further, although the Paragon system contains an on-screen processor, it does not contain the additional circuitry required to perform the function of the analog video overlay image generating circuit of producing overlaid video signals.

16. The Paragon system DOES NOT contain an analog video overlay circuit. An analog video overlay circuit is defined according to the patents-in-suit as the structure disclosed at col. 12, ln. 15 through col. 13, ln 3, at the table at the bottom of col. 12, and in Figure 12A as at least the comprising two sets of three tri-state buffers and an overlay control logic circuit, where the analog video overlay circuit perform the function of overlaying a portion of the analog video signals from analog video receiving circuit and the analog video signals generated by the analog video overlay image generating circuit analog overlay image, and where overlay means to lay or spread over or across or on top of such that the video signal from the first source can be laid on top of the video signal from the second source on a pixel-by-pixel basis. The Paragon system is incapable of combining or overlaying the internally generated video signals with or on top of a portion of the video signals from the selected computer (*i.e.*, the Paragon system can only select one video signal or the other for display on the video monitor). Neither does the Paragon system contain the circuitry required to perform the video combining function of the analog video overlay circuit.

Appendix B

B. *Raritan's MasterConsole Systems*

1. The MasterConsole products DO NOT have a programmable switch. A programmable switch is as defined above. Instead, the MasterConsole products merely contain plain switches.

2. The MasterConsole products DO NOT have a first interface circuit. A first interface circuit is as defined above. The MasterConsole products contain only connectors and wires which perform no interface function.

3. The MasterConsole products DO NOT have an on-screen programming circuit. An on-screen programming circuit is as defined above. Instead, the MasterConsole products contain an on-screen processor (*e.g.*, a Motorola chip, part number MC141543), which does not comprise all of the circuitry nor can it perform the functions of the claimed on-screen programming circuit.

4. The MasterConsole products DO NOT have a programmed logic circuit coupled to a first interface circuit. A programmed logic circuit, coupled to and first interface circuit are as defined above. The MasterConsole products do not have a first interface circuit as discussed above, and thus cannot be coupled to a programmed logic circuit. Instead, the MasterConsole products merely contain a central processing unit, and do not have any interface circuitry separate and distinct from the central processing unit.

Appendix B

5. The MasterConsole products DO NOT have a second interface circuit. A second interface circuit is as defined above. Instead, the MasterConsole products merely comprises connecters and wires, not an interface circuit, such as the keyboard/mouse interface.

6. The MasterConsole products DO NOT have a programmed microprocessor coupled to a first interface circuit. A programmed microprocessor, coupled to and first interface circuit are as defined above. The Master-Console products do not have a first interface circuit as discussed above, and thus cannot be coupled to a programmed microprocessor. Instead, the Master-Console products merely contain a central processing unit, without any interface circuitry separate and distinct from the central processing unit.

7. The MasterConsole products DO NOT have a processor coupled to a first interface circuit. A processor, coupled to and first interface circuit are as defined above. The MasterConsole products DO NOT have a first interface circuit as discussed above, and thus cannot be coupled to any processor. Instead, the MasterConsole products merely contain a central processing unit, without any interface circuitry separate and distinct from the central processing unit.

8. The MasterConsole products DO NOT have a *processor coupled to a first interface circuit.* A *processor, coupled to* and *first interface circuit* are as defined above. The MasterConsole products DO NOT have a *first interface circuit* as discussed above, and

thus cannot be *coupled to* any *processor.* Instead, the MasterConsole products merely contain a central processing unit, without any interface circuitry separate and distinct from the central processing unit.

9. The MasterConsole products CANNOT produce overlay video signals or overlaid video signals. Overlay or overlaid video signals are as defined above. The MasterConsole products are only capable of selecting one video signal from one video source at a given time for display on the video monitor. That is, the MasterConsole products cannot combine or overlay (*i.e.,* lay or spread over or across or on top of) the video signal from a first source on top of the video signal from a second source on a pixel-by-pixel basis.

10. The MasterConsole products DO NOT contain a *computer-side interface.* A *computer-side interface* as defined above is element 76 in Figures 1 and 3 of the patents-in-suit, which show it is its own separate and distinct unit. None of the MasterConsole products comprise a two-or three-component structure. Instead, the MasterConsole products are all single-component devices (*i.e.,* a single switch box). Therefore, there is no separate and distinct computer-side interface.

11. The MasterConsole products DO NOT contain a *user-side interface.* A *user-side interface* as defined above is element 70 in Figures 1 and 2 of the patents-in-suit. None of the MasterConsole products comprise a two- or three- component structure. Instead, the MasterConsole products are all single-component

devices (*i.e.*, a single switch box). Therefore, there is no separate and distinct user-side interface.

12. The MasterConsole products DO NOT have an analog video overlay image generating circuit. An analog video overlay image generating circuit is as defined above. Also, as discussed above, the MasterConsole products cannot produce overlay or overlaid video signals. Further, although the MasterConsole products contain an on-screen processor, none of the MasterConsole products contain the additional circuitry required to perform the overlay function of the analog video overlay image generating circuit.

13. The MasterConsole products DO NOT contain an analog video overlay circuit. An analog video overlay circuit is as defined above. The MasterConsole products are incapable of combining the internally generated video signals with or overlaying the internally generated video signals on top of a portion of the video signals from the selected computer (*i.e.*, the MasterConsole products can only select one video signal or the other for display on the video monitor). That is, the MasterConsole products DO NOT contain the circuitry required to perform the video combining function of the analog video overlay circuit.

Appendix B

VII. Conclusions

A. *The Paragon*

1. The Paragon system DOES NOT have the *programmable switch* required by Claims 1, 6-7, 11, 20 and 26 of the '096 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

2. The Paragon system DOES NOT have the *first interface circuit* required by Claims 1, 11, 20 and 26 of the '096 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

3. The Paragon system DOES NOT contain the *on-screen programming circuit* required by Claims 1, 11, 20 and 26 of the '096 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

4. The Paragon system DOES NOT have the *programmed logic circuit coupled to a first interface circuit* required by Claim 1 of the '096 patent. Therefore, the Paragon system cannot infringe this claim, either literally or under the doctrine of equivalents.

5. The Paragon system DOES NOT contain the *second interface circuit* required by Claims 1, 11, 20 and 26 of the '096 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

Appendix B

6. The Paragon system DOES NOT contain the *programmed microprocessor coupled to a first interface circuit* required by Claims 11 and 20 of the '096 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

7. The Paragon system DOES NOT contain the *processor coupled to a first interface circuit* required by Claim 26 of the '096 patent. Therefore, the Paragon system cannot infringe this claim, either literally or under the doctrine of equivalents.

8. The Paragon system CANNOT produce the *overlay video signals* or *overlaid video signals* required by Claims 6-7, 10 and 32 of the '096 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

9. The Paragon system DOES NOT contain the *first signal conditioning unit* required by the claims of the '176 patent. Therefore, the Paragon system cannot infringe the claims of the '176 patent, either literally or under the doctrine of equivalents.

10. The Paragon system DOES NOT contain the *central crosspoint switch* required by the claims of the '176 patent. Therefore, the Paragon system cannot infringe the claims of the '176 patent, either literally or under the doctrine of equivalents.

Appendix B

11. The Paragon system DOES NOT contain the *second signal conditioning unit* required by the claims of the '176 patent. Therefore, the Paragon system cannot infringe the claims of the '176 patent, either literally or under the doctrine of equivalents.

12. The Paragon system DOES NOT create *a serial data packet,* as required by the claims of the '176 patent. Therefore, the Paragon system cannot infringe the claims of the '176 patent, either literally or under the doctrine of equivalents.

13. The Paragon system DOES NOT contain the *computer-side interface* required by Claims 1-10, 14 and 16 of the '264 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

14. The Paragon system DOES NOT contain the *user-side interface* required by Claims 1-10, 14 and 16 of the '264 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

15. The Paragon system DOES NOT contain the *analog video overlay image generating circuit* required by Claims 1-10, 14 and 16 of the '264 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

16. The Paragon system DOES NOT contain the *analog video overlay circuit* required by Claims 1-10,

14 and 16 of the '264 patent. Therefore, the Paragon system cannot infringe these claims, either literally or under the doctrine of equivalents.

B. *The MasterConsole Products*

1. The MasterConsole products DO NOT have the programmable switch required by Claims 1, 6-7, 11, 20 and 26 of the '096 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

2. The MasterConsole products DO NOT have the first interface circuit required by Claims 1, 11, 20 and 26 of the '096 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

3. The MasterConsole products DO NOT have the on-screen programming circuit required by Claims 1, 11, 20 and 26 of the '096 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

4. The MasterConsole products DO NOT contain the programmed logic circuit coupled to a first interface circuit required by Claim 1 of the '096 patent. Therefore, the MasterConsole products cannot infringe this claim, either literally or under the doctrine of equivalents.

Appendix B

5. The MasterConsole products DO NOT have the second interface circuit required by Claims 1, 11, 20 and 26 of the '096 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

6. The MasterConsole products DO NOT contain the programmed microprocessor coupled to a first interface circuit required by Claims 11 and 20 of the '096 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

7. The MasterConsole products DO NOT contain the processor coupled to a first interface circuit required by Claim 26 of the '096 patent. Therefore, the MasterConsole products cannot infringe this claim, either literally or under the doctrine of equivalents.

8. The MasterConsole products cannot produce overlay video signals or overlaid video signals required by Claims 6-7, 10 and 32 of the '096 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

9. The MasterConsole products DO NOT contain the computer-side interface required by claims 1-10, 14 and 16 of the '264 patent. That is, no MasterConsole product is a two- or three-component structure. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

10. The MasterConsole products DO NOT contain the user-side interface required by claims 1-10, 14 and 16 of the '264 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

11. The MasterConsole products DO NOT have the analog video overlay image generating circuit required by claims 1-10, 14 and 16 of the '264 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

12. The MasterConsole products DO NOT contain the analog video overlay circuit required by claims 1-10, 14 and 16 of the '264 patent. Therefore, the MasterConsole products cannot infringe these claims, either literally or under the doctrine of equivalents.

VIII. Ruling

There is no literal infringement of the patents in suit nor under the doctrine of equivalents; the accused devices do not, but must, embody every element of any of the claims as properly interpreted.

Defendant is entitled to judgment in its favor on the ground of non-infringement of the patents in suit; and no evidence having been, or needing to be, taken in the circumstances herein on the defendant's cross claims, the same are hereby dismissed, without prejudice, and the Clerk of the Court shall mark this action closed and all pending motions denied as moot.

Appendix B

The foregoing shall constitute the Findings of Fact and Conclusions of Law pursuant to Rule 52(a) Fed. R. Civ. P. and Judgment accordingly shall be entered pursuant to Rule 58(c) Fed. R. Civ. P.

So ORDERED.

Dated: February 25, 2002

/s/ Milton Pollack
Senior United States District Judge

APPENDIX C — ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DENYING PETITION FOR PANEL REHEARING AND REHEARING EN BANC DATED AND FILED MAY 29, 2003

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the APPELLEE, and a response thereto having been invited by the court and filed by the APPELLANT, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on June 5, 2003.

FOR THE COURT,

s/ Jan Horbaly
Jan Horbaly
Clerk

Dated: May 29, 2003